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(71) Applicant: VISUAL TELESYSTEMS, INC. [US/US]; Lakeside Office Park, Suite 2, 591 North Avenue, Wakefield, MA 01880 (US).

(72) Inventor: GIRARD, Gregory, D.; 106 Hale Street, Beverly, MA 01915 (US).

(74) Agent: PRAHL, Eric, L.; Fish & Richardson, P.C., 225 Franklin Street, Boston, MA 02110-2804 (US). (81) Designated States: CA, IL, JP, European patent (AT, BE, CH, DE, DK, ES, FI, AR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

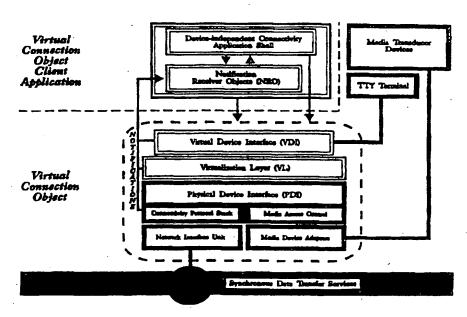
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BEST AVAILABLE

(54) Title: VIRTUALIZED MULTIMEDIA CONNECTION SYSTEM



(57) Abstract

A multimedia connectivity program residing in computer readable memory, the connectivity program when executed on a computer providing to an application program multimedia connectivity services through a real-time multimedia device control subsystem including components selected from among a plurality of multimedia devices and a plurality of real-time multimedia protocol stacks, the program including: a single binary object encapsulating a virtual device interface and a device control interface, the virtual device interface including a plurality of virtual methods that represent logical operations available to the application program for controlling the multimedia device control subsystem, the plurality of virtual functions being completely independent of the components within the device control subsystem, the device control interface mapping the plurality of virtual functions to physical control methods which control the components of the multimedia control subsystem.

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VIRTUALIZED MULTIMEDIA CONNECTION SYSTEM Background of the Invention

The invention relates generally to multimedia connection systems.

With few exceptions, systems supporting facilities for the sharing of live audio and motion-video images have provided integrated hardware platforms that contained both video encoding/decoding devices and an 10 Integrated Services Digital Network Basic Rate Interface (ISDN/BRI). Stand-alone, dedicated video conferencing systems began as wholly proprietary designs (early video conferencing systems from PictureTel Corporation and Compression Laboratories, Inc.), but by 1993, 15 conferencing products based on the personal computer became available. These systems relied upon standardized operating systems to host command, control, and user interface software components. Specialized hardware support for videoconferencing services was implemented in 20 adapter board configurations that contained real-time video processing facilities, integrated with an ISDN/BRI hardware component (PictureTel S1000, CLI Eclipse). all intents and purposes, the software architectures used in the implementation of the motion-video connectivity 25 sub-systems have been extremely tenuous year and essentially the state of the st unusable as discreet modular components in that they lacked a comprehensive, extensible software model to support the diversity of underlying hardware technologies.

Perhaps the best attempt at creating a simple, reusable motion-video connectivity sub-system for integration into second-party products is available from Zydacron, Inc. (Zydacron Z240, Z250). Even the simple, clean implementation of this system's software control

35 mechanism requires many months of specialized software

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development, including significant design and implementation of complicated protocol components, before the sub-system is usable in a commercial product.

ITU-T RECOMMENDATION H. 320

Motion-video connectivity, between systems from different vendors, is possible only through the general acceptance of standardized protocols for interconnection between local and remote stations. In March of 1993, the International Telecommunication Union (ITU-T) adopted 10 Recommendation H. 221 (LINE TRANSMISSION OF NON-TELEPHONE SIGNALS) as the standard for the interconnection of devices supporting the exchange of audio, video, and binary data types (see Tru-T Recommendation H.221, FRAME STRUCTURE FOR A 64 TO 1920 kbits/s CHANNEL IN AUDIOVISUAL 15 TELESERVICES, 1994. This protocol is grouped with two other related interconnection protocols under the rubric Woof Recommendation H.320, which is now the generally accepted set of protocols for implementing composite audio/motion-video/data connectivity across the Integrated Services Digital Network as embodied in narrow-band visual telephone systems ISDN- see, ITU-T Recommendation H.320, NARROW-BAND VISUAL TELEPHONE SYSTEMS AND TERMINAL EQUIPMENT, 1994). Recommendation H.320 is a virtualized definition of an extensible, 25 finite set of capabilities, device modes, data transfer frame structures, and call control procedures. At some level in the software layers that comprise H.320compliant connectivity stations, there must be (by definition) an implementation of a significant subset of 30 the Recommendation H.320 multimedia interconnection services. Despite this distinct commonality shared by inter-connectable stations, there are no commercially available software models, known to this author, that promote these standardized audiovisual/data connectivity

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services to a useful, consistent reusable kernel of device-independent software control elements.

. 155. or, lalo remoto e mi elimen el 45. e. **SYSTÈM ARCHITECTURES**

System and user interface software designs for 5 multimedia connectivity stations have typically been derived directly from the service profile of the underlying devices that they control -- multimedia connectivity software architectures are mostly hardware Since multimedia connectivity tasks, such as 10 videoconferencing, require synchronous encoding/decoding of audio and video data at high data rates emanating ... to/from synchronous data transfer connectivity devices, most of the motion-video connectivity devices integrate all the necessary components onto one large multing a 15 purpose device. Typically these devices take the form of an ISA or EISA personal computer adapter that includes additional hardware support for specialized video overlay Without a major software development effort, it is impossible to utilize the manufacturer's sub-system for a new connectivity application. Those wishing to impart videoconferencing services to their enterprise are most frequently restricted to the single software application program provided by the hardware vendors that is the only one capable of sufficiently driving the 25 vendor's complicated hardware configurations. PictureTel Corporation, Zydacron, Inc., and Compression Labs, Inc., design and develop most of the world's motion-video connectivity sub-systems according to this multiple integrated device architecture. These systems performs 30 well for stand-alone videoconferencing purposes. Recent attempts by Intel Corporation to produce software video solutions with minimal hardware support, are of inferior image and sound quality. The allocation of valuable central processing unit resources to real-time video

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encoding/decoding tasks is inefficient at 128 kbit/s data transfer rates, and entirely inappropriate at transfer rates of 384 kbit/s, ser more. A data transfer rate of 384 kbit/s is required to produce motion video connection 5 services with frame rates and image clarity sufficient for large-scale acceptance of these technologies; a 128 kbit/s data transfer rate produces video image quality that can best be described as "disappointing" to " 2200 uninitiated technology customers who typically expect a 10 broadcast quality television image (see D. Minoli and R. Keinath, Distributed Multimedia Through Broadband Communications Services, Norwood, Massachusetts, Artech House, pp. 187-207, 19949 There will likely continue to be a continuous stream of hardware and software solutions 15 to improve the quality of motion video connectivity using personal computers, cand systems will continue to undergo rapid change as high-bandwidth ISDN connections become cost effective and generally available. In consideration of the extraordinary engineering effort required to 20 produce motion-videosconnéctivity systems, and the difficulties of developing software to support new devices, more can be done to reuse the high-level applications and protecel support code developed for these preducts. Rudramendance pain is a carrie cano char It i brockmade roaded to support them, is retermed

Summary of the Invention

VIRTUALIZED SYSTEM DESIGNS STARTED VIEW , TO LUBERT STARTED

An analogous problem to that of the hardware-driven software designs in multimedia connection systems can be found in the early attempts to create Graphical

User Interfaces for the wide variety of graphics hardware used with personal computers. Here again, hardware features influenced overlaying software designs, with a proprietary device driver interface supported by almost every distinct video graphics adapter manufacturer. The

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Microsoft Windows Operating Environment, and the o Operating System/2 Presentation Manager, solved the problems related to video graphics hardware variability by abstracting the services of these devices to a fully 5 device-independent model. The original Microsoft solution is called the Graphics Device Interface (GDI) wand it is the paradigm shift in video graphics technology made. possible by this particular product component, that has helped promote the Graphical User Interface (GUI) to its 10 ubiquitous market position. The invention of the GDI acallowed the development of GUI applications that would run over any graphics hardware integrated according to the GDI's prescribed methodology (see C. Petzold, saucil Programming Windows 3.1, Redmond, Washington, Microsoft 15 Press, Chapter 11 1992 to itoo to will sup said every in car to componer of The principle that sunderlies the GDI is (that there exists, a finite set of graphical operations that will so enable a software developer to draw just about anything on a bitmapped display device Italia taken into and the 20 consideration that some graphics hardware is more or less. suitable for the direct implementation of these and in the operations; some operations may not be supported at all by the hardware. To derive a set of abstract, clogical is operations, without giving consideration, toothera leader 25 underlying mechanism needed to support them, is referred to as the process of virtualization. In a GDI implementation, any graphics operation that may the rear supported directly by a hardware function, is accessed directly using a vendor-specific device driver. If a sale 30 close mapping of a physical to a logical graphical 1985 operation exists, some software modification of the case of physical operation, to better implement the desired of the desired logical operation, is invoked as needed. If no hardware support exists for the operation, it may be emulated 35 entirely in software, or marked, as, a task of which the

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vendor-specific driver is incapable. A structured capability report mechanism is available to applications using GDI, so that they may determine if a specific operation is even possible. Regardless of whether a particular operation is supported by the graphics device per se, or can be emulated, if there is any way GDI can fulfill the request for service, then the graphical system is considered to be capable. This same virtualization principle behind the Graphics Device Interface can be expanded to create a logical description of operations necessary to fully describe multimedia interconnection operations.

A VIRTUALIZED MULTIMEDIA CONNECTIVITY BYSTEM Videoconferencing is but one interesting

15" multimedia connectivity service. However, what is needed is a change in the way we view multimedia interconnection, not only in terms of the logical operations we wish to perform, but in a way that most advantageously applies those operations to specific 20 Configurations of audio-video transducers, and diverse sources of synchronous data connectivity. A generalized model for multimedia connectivity application development must take into consideration that the essence of these technologies is the structured sharing of sound and light 25 spectral data (as opposed to binary data). The vendorspecific facets of media transducers and network interfaces employed to implement related services must be rendered entirely irrelevant to the operation of software programs desirous of device-independent audiovisual 30 teleservices.

In that regard, an efficient, consistent, and extensible presentation of multimedia connectivity services to software programs is achieved through the appropriate run-time binding of media transducers to

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connectivity protocol stacks. Device-independent multimedia connectivity services are abstracted, in ... software, to an externally consistent media and network interface control interface. A single binary software 5 object is constructed to encapsulate all relevant hardware and software components necessary to support virtualized multimedia connection services. These services are accessed through manipulation of the object's members. A specific instance of the 10 virtualized, encapsulated media control and connectivity, components required to implement the defined services, is referred to as a Virtual Connection Object (VCO) . Each VCO contains a reusable Virtual Device Interface (VDI) software component that contains the VCO's Software with 15 Control Interface (SCI) and device-independent, media/connection_device_control_methods...The VDI derives implementation of its services from a Virtualization Layer (VL). The Physical Device Interface (PDI) provides control of the physical media transducers and one or more 20 network interface units, in a fashion consistent with both the techniques specified by their manufacturers, and in a way that enables their efficient utilization by methods in the VL. Device-generated events, occurring in real-time, asynchronous with the system scheduler, are 25 inserted into an infinite event queue, to be periodically dispatched to the VDI, synchronous with the system scheduler. Physical limitations on the level of service provided by encapsulated media transducers/network interface, are expressed as the Local Capabilities. When 30 connected, the capabilities of the remote station are expressed as the Remote Capabilities, and are available to the constructor of the VCO. The quality of the connection is described as the logical intersection of both the Local Capabilities and the Remote Capabilities, 35 and is referred to as the Connection Capabilities. vco

implementations abstract multimedia connectivity services to the level of the Open Systems Interconnection Reference Model Presentation Layer; device-dependent control methodologies for vendor-specific media

- transducers and connectivity protocol stacks have no representation in the Presentation Layer. Software programs that construct VCOs and utilize the presented multimedia connectivity services, are referred to as VCO clients. These device independent connectivity programs
- nultimedia connectivity subsystem that encapsulates its services into a Virtual Connection Object, according to the disclosed methodofogy subsystem to encapsulate and the disclosed methodofogy.
- In general, in one aspect, the invention is a multimedia connectivity program residing in computer readable memory. The connectivity program when executed on a computer providing to an application program multimedia connectivity services through a real-time multimedia device control subsystem including components
- selected from among a plurality of multimedia devices and a plurality of real-time multimedia protocol stacks. The program includes a single binary object encapsulating a virtual device interface and a device control interface.
- The virtual device interface includes a plurality of virtual methods that represent logical operations available to the application program for controlling the multimedia device control subsystem. The plurality of virtual functions are completely independent of the components within the device control subsystem. The
- device control interface mapps the plurality of virtual functions to physical control methods which control the components of the multimedia control subsystem.

In preferred embodiments, the device control interface includes a plurality of media control objects which represent audiovisual and binary data streams

associated with the components of the plurality of devices and/or real-time multimedia protocol stacks. The virtual device interface is configured to present a logical representation of the multimedia connectivity. 5 services provided by the connectivity program The device control interface includes a virtualization layer and a physical device interface layer, the virtualization layer being located between the virtual device interface and the physical device interface. The physical device 10 interface directly interfaces to the device control 500 subsystem to provide a physical implementation of services requested by the application through the virtual device interface. The virtualization layer resides sar between the virtual device interface and the physical 15 device interface layer and is configured to translate and A map device control mechanisms employed by the underlying multimedia control sub-system to representations required by the virtual methods of the virtual device interface. Also, in preferred embodiments, the plurality of 20 media control objects provides the multimedia connectivity control program with a pool of media device signal resources. Each of the plurality of media control objects is classified as at least one of type of the group consisting of an audio type, a video type, an image 25 type, and a binary data type, Also, each of the sun plurality of media control objects represents a signal from the group consisting of a signal from a remote station, a signal to a remote station, a signal from a local output device, and a signal to a local output 30 device. The operations performed on the plurality of media control objects by the physical device layer under control of the virtual device interface implements a logical software switching mechanism. The virtual device interface implements, a plurality of public member 35 functions, the virtual functions being a subset of those

- public member functions and the plurality of public member functions representing all of the public member functions in the single binary object that are accessible by the application program.
- In general, in anotehr aspect, the invention is a computer programmed to provide to an application program multimedia connectivity services through a real-time multimedia device control subsystem. The multimedia device control subsystem includes components selected from among a plurality of multimedia devices and a plurality
- of real-time multimedia protocol stacks. The programmed computer includes a virtual device interface and a device control interface, both of which are encapsulated in a single binary object.
- includes a plurality of virtual methods that represent logical operations available to the application program for controlling the multimedia device control subsystem. The plurality of virtual functions are completely independent of the components within the device control
- is a computer implemented method of providing multimedia connectivity services through a real-time multimedia device control subsystem. The multimedia device control subsystem includes components selected from among a plurality of multimedia devices and a plurality of real-time multimedia protocol stacks. The method includes the steps of defining and supporting by computer implemented
- steps of defining and supporting by computer implemented steps a virtual device interface; and defining and supporting by computer implemented steps a device control interface. Both the virtual device interface and the device control interface control interface are encapsulated in a single

binary object. The virtual device interface includes a plurality of virtual methods that represent logical operations available to the application program for controlling the multimedia device control subsystem. The plurality of virtual functions are completely independent of the components within the device control subsystem. The device control interface maps the plurality of virtual functions to physical control methods which control the components of the multimedia control

Multimedia connectivity sub-systems, when developed for use in a VMCS, present an externally consistent, fully abstracted set of logical operations to software programs, therewith exposing the faculty to its account to the second 15 create adjunct, device-independent, interoperable multimedia connectivity software application programs. The disclosed invention is a methodology to enable the structured sharing of spectral information between interconnected microcomputer stations of Though a compared to 20 principally intended to facilitate control of kive audio and (motion) video information, this somprehensive ... 1 connectivity paradigm incorporates mechanisms for storeforward operations; binary data object transfers are also supported. For the purposes of practical consideration, 25 the VMCS pursues a classic client-server model of a 2 3 35 application/sub-system interaction as The sub-system and presents a coherent software control mechanism to deviceindependent connectivity applications created explicitly to utilize its structured, highly-typed, set of services.

Insofar as software programs benefit from virtualized binary data sharing technologies, the same benefits may be realized by those sharing spectral information, if the system is implemented as a Virtualized Multimedia Connection System (VMCS).

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Other advantages and features will become apparent from the following description of the preferred embodiment and from the claims.

Brief Description of the Drawing

- Fig. 1 shows the symbol conventions used in the following figures; a same is the figures;
- Fig. 2 is a brock diagram showing a VCMS component coverview;
- Fig. 3 is a block diagram showing a VCO
 - Fig. 4 is a block diagram showing the VCO software marchitecture; and margain and d a si 6: 000
 - Fig. 5 is a block diagram showing the VCO client application software architecture;
 - Fig. 6 is a block diagram showing the VCO class derivation;
 - Fig. 6A is a table of the VCO exception handling modalities;
- Fig. 6B is a table of the VCO trace output
 - Fig. 6C is a table of VCO events which trigger notification;
 - Fig. 7 is a block diagram showing the device control mechanism, and the second second
- Fig. 8 is a block diagram showing the VCO control methodologies; the mampalia that it is the vco control
 - Fig. 9 is a block diagram showing the terminal output control flow;
- Fig. 10 is a block diagram showing the signal triggering mechanism control flow;
 - Fig. 11 is a block diagram showing the event queuing and dispatching control flow;
 - Fig. 12 is a block diagram showing the connection capability control flow;

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__ cr _= 13 -Fig. 13 is a block diagram showing the capability and mode mapping control flow; Fig. 14 is a block diagram showing the call was controller control flow: Fig. 15 is a block diagram showing the line disconnection control flowing and away and Fig. 16 is a block diagram showing the line dialed, ringback, busy, and connected control flows; Fig. 17 is a block diagram showing the line ring 10 control flow; with the programme to the second of the Fig. 18 is a block diagram showing the call reset, mode setting, and mode restoring control flows; Fig. 19 is a block diagram showing the exception Fig. 5 is a block diagram showing the Volume Fig. 20 is a block diagram showing the media control object command control flow; s at a space Fig. 21 is a block diagram showing the media device capability guery, control flow; 24 43 . 82 2 Fig. 22 is a block diagram showing the media. 20 access control request control flow; as 68 . 974 Fig. 23 is a block diagram showing the device event processing control flow; Fig. 24 is a block diagram showing the object construction and destruction control flows; Fig. 25 is a block diagram showing the Open open command control flow; a stangerh knowld e el 3 . 923 Fig. 26 is a block diagram showing the Close ... command control flow; Fig. 27 is a block diagram showing the "Call" 30 command control flow; Fig. 28 is a block diagram showing the "Multicall"

command control flow; state to knot a the appropriate Fig. 29 is a block diagram showing the Hang-Up command control flow; and

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Fig. 30 Is a table of the multipoint control operations.

Appendix: Contilaning source code for Virtual Device Interface Header File,

Description of the Preferred Embodiments DEFINITIONS

Provided below are definitions for terms used throughout this disclosure. While common technology parlance may assign a variety of alternative meanings to them, those definitions following refer to specific usages in this manuscript only, noted explicitly to alleviate ambiguous technology references henceforward.

Transducer

This term refers to a device that converts one form of
energy into another. Here specific reference is given to
those that convert light and sound energy to electrical
pulses, or inversely, electrical pulses back to light and
sound energy. Examples include cameras, microphones,
speakers, and video monitors.

20 Signal

This term refers to a digital data stream used to transfer raw or encoded binary information, except in the case of direct references to "bit-rate allocation signal indications."

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25 Indication

This term refers to a message connoting a change in state or modality of a system of station component; basic unit of notification used for the sole purpose of communicating the occurrence of some specific event.

30 Notification

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This term refers to an indication transmitted from one software component in the system to another software component in the same system. Typically used to notify software system components that some specific event has occurred and some response is required.

Spectral information

Terminal

This term refers to sound and light data that are represented as modulations of electromagnetic or audible spectra; audible and visible waveform information.

This term refers to electrical pulse data encoded as binary numerical values that are typically referenced in octets.

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This term refers to as a physical or virtual teletype console device that displays text data output to it, and returns text input, such as if read from a keyboard device; essentially a dedicated text-processing I/O device or software representation thereof, with no significant processing ability.

Station

This term refers to an intelligent node on a network to which other network nodes can connect and exchange (%) messages.

This term refers to the station whose resources are directly addressable without using an intervening network connection; conceptually perceived as the near-end of any connection.

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Remote station

This term refers to the station whose resources are not directly addressable without an intervening network connection; conceptually perceived as the far-end of any connection.

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. Sharing: The construction of the second production of the second contractions.

This term refers to bi-directional data transfer between interconnected stations on a network.

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Vendor-specific

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- 10 This term refers to any hardware or software system
 no component that requires a non-standardized software
 control layer to accord are the particular requisite
 interface format and control procedures described by its
 manufacturer. A saddo and to standard require and to
- 15 Multimedia equatolo illida as dosa , antok elbed redd : ba

This term refers to a class of digital computer technologies that store, retrieve, manipulate, and play back audible and visual information. These technologies are embodied in combined software and digital hardware

- sub-systems that encode spectral information presented to cinput transducers, into digital data streams that are then stored in a compressed format. This compressed digital information is fater reconstituted back to spectral information by decompressing, decoding, and
- 25 subsequent retransmission through output transducers.

.Connectivity wher formula solves (solvet her with the

This term refers to the generalized concept of establishing a communications link between two or more stations on a network, exchanging messages according to some preconceived notion of structured interaction; this notion of interaction referred to as a protocol.

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Multimedia connectivity

This term refers to the generalized congept of establishing an audible, and/or visual communications link between two or more stations on a network; These technologies are embodied in combined software and digital hardware sub-systems that encode spectral information presented to input transducers, into digital data streams that are then transmitted across a network connection to a remote station in a compressed format.

- There it is reconstituted back to spectral information by decompressing, decoding, and subsequent retransmission through output transducers. When occurring bidies are directionally in real-time without delay, the connection between the stations is described as a live as a if the
- to the output transducers of one statio, were connected directly to the output transducers of the other, and the network becomes conceptually irrelevant to the process. A variety of other media forms, such as still pictures and plain binary data, may also be exchanged between stations on an occasional basis, and played back as needed.

Media Control Interface (MCI) secretary of the specification that allows its users to control winderlying physical media devices using a somewhat well-defined. The standardized string-token command language of the secretary is the secretary of the secretary of

Media Access Control (MAC)

This term refers to that set of MCI drivers that provide a standardized physical device control interface layer between the more device-independent software layers that issue MCI string commands, and the vendor-specific device drivers that contain proprietary interfaces and control procedures to initialize, shutdown, and utilize the peripheral hardware components.

- Object-Oriented Design will end quad process of sect This term refers to a methodology to enhance the quality of computer systems by describing their constituent components as discreet sets of related, well-defined 5 operations whose implementations are isolated from their functionally described operational profiles; interactions between system software components are defined with equal precision, according to a specialized software development methodology. Highly-structured programming languages1 and design tools promote creation of modular, reusable software components that can be recombined to build new components; existing components are better understood in terms of functionality and reliability. In This way, implementations of new components borrow the 15 functionality (and demonstrated reliability) of preexisting suftware technologies to create new products, thereby significantly reducing development time and dramatically improving overall system reliability. traplementation diffications sessociated with mains of OPERATING SYSTEM MODEL TOWNS TO BE FOR SHORT SETTING SYSTEM MODEL

A more accurate technical description of the VMCS 20 is that of a Virtualized Multimedia Connectivity Operating System. Designed for a multithreaded, protected memory model implementation, the VMCS server component runs parallel to the client applications that utilize it, 25 the server responding to client requests with a stream of notifications directed to class objects located in the client programs. A client application invoking a VMCS server, spawns a concurrent operating system that effectively manages all hardware and software components 30 necessary to establishing a device-independent multimedia connectivity service, in much the same way as any operating system does to support its general application programs. Once created, the VMCS server runs by itself, independent of the client, and capable of offering

services to more than one client at the same time. Just as with advanced operating systems, the transactions between clients and servers are fully protected, and highly structured with regards to both syntax and sequence. The VCO Client selects an "operating system" that best suits the system hardware configuration, invokes it when needed, discards it when it is no longer needed, and changes it when it prefers an "operating system" with a different service profile.

Consistent with the intention of its design,
multiple VMCSs can be concurrently invoked. The VMCS, in
accordance with the "operating system" model heretofore
described, was intended from its inception, for
implementation in multiprocessor or distributed systems

where a separate coprocessor parallel processor, or
entire system could house the server component
separately. Further, embedded implementations (for use
with coprocessor systems) do not pose the usual
implementation difficulties associated with sub-system
designs whose client and server component were assumed to
reside in shared memory.

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STANDARDS COMPLIANCE The results of the state of the sta

There is a well-defined modality of interaction between VMCS servers, and the VMCS applications that use them, the orders of whose operations are specified with mathematical precision. Resultantly, there is a high-degree of predictability in the progression of connectivity sessions, and corresponding measurable, improvement in their robustness. VMCS implementations are unique in the domain of multimedia connectivity systems. Specifically, they make possible the creation of standardized software communication products, enable connectivity applications to run over any compliant connectivity sub-system, fully integrate audiovisual/data

connectivity services into a single control mechanism, reduce software development time, and expose extraordinary-levels of derived functionality. This methodology is primarily a software 5 development technique. Object oriented software components are created to abstract the low-level services of media control and network interface components to a fully-virtualized multimedia connection service that integrates the ITU-P multimedia interconnection protocols 10 (H.320); the Open System Interconnection (OSI) Reference Model, and object-oriented software design principles. The VMCS architecture combines these paradigms into a , edynamicaTTý Instantiábře client-servěřemultímedla sonnectivity service technology. ITU-T Recommendation 15 H. 320 defines a discreet set of operations and procedures necessary to the sharing of spectral and binary data between compliant interconnected stations. It enables reliable, structured data transfer and device mode synchronization to stations connected to the Integrated 20 Services Digital Network (ISDN). A VMCS implementation employs the ubiquitous H.320 recommendation as a rigorous definition of its most basic set of multimedia connectivity operations. For stations that access the ISDN, this application of H.320 is natural and obvious, 25 but the VMCS goes on to take further advantage of the apposite H.320 structure. The VMCS architecture insists upon the promotion of the H.320 protocol set to that of a universal framework to which even non-compliant protocols Frant be promoted: span analysplicatings are set jar a st

30 ARCHITECTURE

OSI REFERENCE MODEL

Connectivity system developers can abstract the presentation of non-compliant services to a representation more efficiently managed by applications

ಆತ್ಯಾಕ ಕ್ರಾತಿಪರ್ಕಾರ ಜ್ಞಾಗಿಕಾರ ಬಳ ಫ್ಯೂಟ್ ಟ್ ಕ್ರಾನಿಕ ಬಿ. ಮೇ

(that are typically unconcerned with the specific requirements of the control mechanisms). The Open System Interconnection (OSI) Reference Model defines a layering model offered internationally as a generalized system 5 architecture to affect the designs of connectivity software systems, particularly with respect to host stations desirous of reliable interconnection. For any host operating system (OS), a Virtualized Multimedia Connection System (VMCS) provides an exact definition of 10 the OSI Presentation Layer that serves as the interface of between a connectivity application (client), and theore connectivity sub-system (server). The majority of / and software components, common to all VMCS implementations, are reusable versions of the services specified to reside 2 15 in the OSI Session Layer; they provide device-independent implementations of the protocols represented by the H.320 rubric. Media control and network interface of the control and network interface of t manufacturers are usually best qualified to supply lowlevel device/protocol support drivers that comprise the 20 OSI Transport, Network, and Data Link Layers The VMCS is most efficiently implemented when it leaves this task to them, and instead builds on their work. For specific in media control and connectivity tasks, it is often a conindeterminate as to whether a device, or software 25 component, will comprise the best utensil. Since the OSI :: Reference Model is functionally specified, a system as developer has the flexibility to derive a VMCS subcomponent, or entire OSI Layer, in a way that best supports its design specification, regardless of whether 30 it is build with existing or newly created subcomponents. BATTER IN TELETO

OBJECT-ORIENTATION COMPLETE OF AFTE COLVETOS FROM

Both VCO Client and server software components are developed with an object-oriented programming language,

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according to a precisely defined class inheritance and derivation hierarchy. A binary software object is created to encapsulate disparate software components into one functional entity, whose services are available only 5 through structured access of its control elements (member functions and member data). The strategy of all VMCs designs, derived by the application of this methodology, is to encapsulate media control services, connectivity services, and protocol support components, together, in a 10 way that best integrates their properties into an instance of a standardized multimedia connection service to be used by device-independent client applications. Specific protocol support procedures, and media control components; are shared by all VMCs implementations; usually they are worth preserving, fine-tuning, and carrying forward to new implementations. VMCS implementations created to support new hardware configurations are most accommodating to this circumstance, to the extent that they are typically minor 20 modifications of a reference VMCS implementation. New VMCS implementations may be designed in one of three modalities. First, a VMCS can be developed to exploit the services of an existing multimedia connectivity product (hardware and software sub-system layers) manufactured by 25 a third party. Such a project would restructure proprietary controls of the native interface, coercing (virtualizing) them to the structured consistency defined by the VMCS paradigm. A second modality is to create a presentation of the defined VMCS services for a new device set, creating all device control components, VMCS components, and perhaps the devices themselves. Lastly, designs can, at run-time, invoke a particular presentation of services, derived from the ad hoc association of media control devices with selected the contraction and the contraction of the

connection services, in a way most suitable to producing a desired multimedia connectivity service profile.

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CLIENT/SERVER MODEL

Notwithstanding the flexibility afforded by 5 software implementations, it is useful to describe the works of the VMCS in terms of discreet, mechanical components. There is no requirement for any component to be implemented entirely in hardware, or entirely in ... software, per se, so the distinction will not be brought. 10 to bear on this discussion. There are two major components in any VMCS: the multimedia connection subsystem (server), and an application program that invokes its services (client). Any VCO Client application can invoke the services of any server, without hesitation, 15 with a guarantee of compatible access. More nebulous is the parity between the quality of services requested by the client, and those provisioned by physical devices encapsulated in the server. Strictly speaking, the server is the binary software object that encapsulates the media; 20 control and connectivity sub-system. It is referred to as a Virtual Connection Object (VCO), and the client application that invokes usage of its services, is referred to as a Virtual Connection Object Client Application (VCO Client). In this section, the scope of 25 the discussion will be limited to a functional description of these entities. to ent or ment (proculendary)

SERVER COMPONENTS

Virtual Connection Objects are binary software objects that encapsulate the media control and connectivity components requisite to the implementation of a discreet subset of multimedia connectivity services. They are invoked and adjusted by manipulation of their members. When constructed, a VCO dynamically builds the

particular operational context of hardware and software components needed to best implement virtualized multimedia connection services. Destruction of the object deletes this operational context by shutting down all 5- components, turning off devices, and releasing any allocated resources. For the host OS, every implementation of such an object presents members that are identical in syntax, structure, and usage. In fact, every VCO is functionally analogous in its control 10 mechanism, but unique in both its name, and the degree to which it is able to realize the full set of VMCS services defined to be represented in every instance thereof; that is each VCO has a unique set of capabilities. Inherent to every VCO, is the ability to provide metrics describing 15 the potential quality of services locally available, and the actual quality of services available while connected to a particular remote station. The service profile of the unconnected focal station is available prior to device initialization (but after VCO construction) 20 casual examination by interested VCO Clients; this profile is referred to as the Local Capabilities. The service profile of a remote station is available while it is connected to the local station, and this profile is referred to as the Remote Capabilities. Also available 25 when connected, is the service profile of the connection itself, referred to as the Connection Capabilities. This is the preeminently useful metric, and quantifies the potential quality of interactions between the local and remote stations; precisely, it is the logical 30 intersection of the local and remote capabilities. lanneles A real-time reporting mechanism alerts system software objects of changes in the specific states, modalities, and conditions critical to the operation of the encapsulated multimedia connectivity sub-system. The 35 basic unit of information, or indication, is referred to

as an Event, and each VCO contains a specialized delivery system that can notify software components in the host system when one such event has occurred; a Notifier Object is the mechanism for this delivery. Notifier Objects are triggered by the occurrence of any event type to which they are programmed to respond, and they are used both internally by the VCO, and externally by its clients. Finally, it should be pointed out that a VCO is implemented to present the services of one particular configuration of media control/network interface setup that comprises the multimedia connectivity sub-system, and it is likely each significantly different hardware and/or software configuration will require a somewhat different VCO implementation; a VCO is a device dependent entity.

CLIENT COMPONENTS

IN A Filter Survey and Indicate along the United A 19

Applications programs described in the VMCs are referred to as Virtual Connection Object Clients, area device-independent, software application programs that 20 invoke VCOs, and manipulate their members to control live information-sharing sessions with remote stations; to that end, they create use-specific logical combinations of currently available audiovisual/data resources to a support a defined set of multimedia connectivity tasks 25 that is the embodiment of that particular connectivity: application. They are developed in an apriori fashion. according to a concise, multimedia connectivity software control interface specification, the integral are encuent implementation of which each VCO must contain. Clients 30 dynamically invoke at least one appropriate VCO, selected (from a library) according to some notion of suitability, and then construct it only when a connectivity session is actually to be initiated. VCO Clients create instances of Notifier Objects, and utilize them as a mechanism to

respond (more-or-less instantaneously) to occurrence of divers events to which they have been rendered sensitive. A client software object that contains member functions to receive, and respond appropriately to, these signaled 5 events, is referred to as a Notification Receiver Object. Clients may monitor and or intercept connectivity and device control related occurrences in the encapsulated sub-system, by creating instances of VCO Notifier Objects with specific response profiles. These Notifier Object 10 response profiles may be reconfigured ad hoc; they define the set of specific events that will trigger notifications (when a specified event occurs) to one figentified NRO. There can be only one NRO associated with a particular instance of a Notifier Object. In a given 15 host Os, any Vco Client can function using any Vco; a Vco Client is a device-independent entity. PACS, respendings of the tarpet operations agreem

METHOD

Here follows description of a method to implement a preferred embodiment of a Virtualized Multimedia 20 Connection System (VMCS). The scope for the disclosure will be restricted to an elucidation of those elements required to derive a design specification for a fully device-independent multimedia connection system; a system To be built from third-party media control devices, 25 device drivers, and a connectivity protocol stack running over a network interface unit. All VMCS software components are created with an object-oriented programming language (see M.A. Ellis and B. Stroustrup, The Annotated C++ Reference Manual, Reading, 30 Massachusetts, Addison-Wesley, 1990). Attendant source code provides a precise definition of the host/client software interface, and an example of a simple, portable device-independent connectivity application. មុខមា ១៩ ១៦ ១៦៩ទី៩៨៥១២១ខែ្លារ ៥០២០ គ មិនប់ថ្ងៃ

The design of this system will be considered initially from the perspective of an overview, and subsequently as a functional examination of its component interworkings. Next comes a detailed examination of 5 critical software and hardware constructs needed to physically implement a VMCS design. The topic concludes with a discussion related to the deployment of a working system in an actual host computer system. For this section in particular, the examinations of system details 10 remain more generalized in the start, and are more fully later resolved, the strategic intention to permit a system engineer to pursue a top-down design approach for his particular VMCS adaptation Compliant designs will produce products supporting exact binary compatibility 15 between every VMCS created for the same target operating system, and exact functional compatibility between every VMCS, regardless of the target operating system.

នៅ ចិត្តាតិស្គែល ១០ របស់ការ៉ាស់ស្គែ**ជបទ**ស្គិត **ឧសាជ** (និងមិ ស្គាល់ដ VISUAL TELEPHONE SYSTEM MODEL

The creation of a visual telephone system is the most likely application for a VMCS implementation. Such a system illustrates all of the basic components that comprise the set of media control, network interface, and software control features common to most such solutions The ITU-T describes a generalized model now available. for this type of system in a document referred to as Recommendation H.320. This discussion, as related to a VMCS implementation, is best served by a similar treatment of the subject, as it relates to the task of 30 deriving a virtualized model of multimedia connectivity; the VMCS software abstraction represents the functional aspects of the generalized visual telephone, with some notable extensions to its base level utility, also be pointed out that a VMCS implementation in no way

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relies upon the TTU-T recommendations below the level of the signal and indication protocols specified by H.320 -- any network or connectivity sub-system could conceivably be adapted as the underlying network transport layer.

5 ELEMENTS OF A VISUAL TELEPHONE SYSTEM

The prototypical VMCS system relies on divers hardware and software components to transfer audio, motion-video, still pictures (images), and binary data objects between stations connected to the same network.

- Devices and control systems described below should be considered in terms of being functional entities; the potential to support device characteristics with a software emulation module is an implementation alternative that does not alter the basic strategy of
- 15 VMCS design. In fact, input from, or output to a transducer device can be simulated by a data stream read from, or written to backing store.

I/O Equipment and spinses of calvation stab assumptions.

These devices are referred to as transducers in that it is their primary task to convert energy forms from spectral to pulsed electrical, or vise-versa. In practical terms, these devices are the only parts of the system with which the user interacts directly.

and related sound detection equipment to and related sound detection equipment to input the voice of the user. For output, loudspeakers and headphones are output transducers in a VMCS.

• Video devices include a camera to input

motion-video images of the user. For output,

video monitors display motion-video, as do

dedicated analog (NTSC/PAL) video displays

Image devices include a camera to input . images, as well as scanners to capture highresolution images. For output, video monitors display images, and in addition, printers: that can render images are considered output transducers work as well as the second TO BIRELL N I Data devices do not convert energy forms, but are essentially "locations" in the system through which data flows, or in which it is stored. Data devices include any backing. store (disk) entities, or data ports, such as a communications port. Dedicated data streams, or "socket" interfaces would also qualify as valid VMCS inputs/outputs for binary data. Ton asob sand evission is to

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CODEC ကို (အခဏ္ဏာ ယက္၏) ၈ မရီ သီခက္ခရိအားသခု ခရိုအတာ ခရာန္မေခ့ခဲ့ အခုတွင်းနည္းမွာသ These devices compress data from input transducer devices prior to transmission or storage, or inversely decompress data following transmission from a remote 20 station or retrieval from storage. The process of compression is referred to as encoding, as spectral data is encoded according to an algorithm; decompression is correspondingly referred to decoding. Visual telephones transmit and receive audio and video data in a compressed 25 format so as to enhance the efficiency of the system in its endeavors to exchange large volumes of audio and video data across connections that only support a very limited bandwidth. Storage of images to disk proceeds in the same way to reduce the amount of storage space required. a moule of antital cartier

Audio de/compression devices are typically incorporated together with H.221 encoding/decoding hardware used for video processing; audio compression and

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decompression are often accomplished in

• Video de/compression for live motion-video conferencing is best accomplished with hardware specifically designed for H.221 encoding/decoding; video compression in software (for high quality video) is typically unsatisfactory.

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- Image de/compression for images is typically done in software according to a specialized algorithm (such as JPEG) or transmitted as a simple bitmap.
- Data de/compression is typically not compression is typically not compressed prior to itself has been compressed prior to compressed prior to peration.

Telematic Equipment

These are facilities (devices or software components) that act a visual aids to enhance conferencing. Application sharing features, common whiteboards, and image transceivers are included in this category, as are scanners and facsimile devices attached to communications ports on the visual telephone station.

25 Multiplexors/Demultiplexors

Signal multiplexing and demultiplexing operations are typically combined into a single hardware device that combines the audio, video, and related data streams to the single H.221 frame structure (multimedia signal) used in line transmission, and restores them to their constituent data streams upon receipt from a remote station or storage entity.

Network Interface

This component is typically a hardware device that provides the physical connection between the host station and the network, though software simulations may provide an emulated version of the same.

Network

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Any transport medium supporting actual or emulated line transmission of the H.221 signal and indication portion of this protocol, and capable of synchronous (and simultaneous) audio, video, and binary data transport.

Examples of recommended network types include the following:

- ISDN, (Basic and Primary Rate Interfaces).
 - B-ISDN (Using ATM) and linear

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Mobile/Radio (and other wireless)

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Analog (PSTN)

Multipoint Control Unit , sual s acc weit (agreen your

This is a specialized device whose functionality is described by ITU-T Recommendations H.243 and H.231. The functionality of this device must be available for an implementation of a VMCS that is fully capable of the entire set of VMCS-defined multipoint control operations.

25 System Control

The VMCS is an implementation of this (system control) visual telephone system component, but conceived as a more generalized model suitable for utilization in a broad range of concurrent audiovisual/data sharing applications. The VCO component of the VMCS allows a device-independent connectivity client application to

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utilize any audiovisual device control system services related to those of the defined visual telephone system.

VISUAL CALL PROGRESSION

A VMCS session takes the form of a visual 5 telephone call. This interconnection procedure is precisely defined, and permits interoperability between dissimilar stations sporting diverse equipment complements, while retaining compliance to ITU-T Recommendation H.320. It would not be possible to utilize 10 the plethora of potential operating modalities of VMCS systems without a thorough categorization of the set of all those modalities known to be supported by the local station's equipment configuration. Further, each station participating in a connectivity session (call) must come 15 to an understanding of the modalities supported by its counterpart at the other end of the connection. What ensues at the time of the call is a planned negotiation that pits the performance expectations of the local station (as to the set of operating modalities it would 20 ideally prefer to assume during the session), against the cataloged limitations of its remote station peer; a common set of operating modalities they both must cooperatively determine and ultimately share for effective audiovisual communication.

Shown below are the basic steps common to establishing a "normal" visual telephone call. This sequence is idealized in that it does not suffer interruption or complication as frequently occurs in actual use. Notwithstanding the inevitable anomalies encountered during live operation, the following sequence provides a model for call progress; one that must be implemented by every VMCS connectivity sub-system, and

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one derived directly from the ITU-T visual telephone call procedure as follows:

A request is made to the network for a connection to a remote station. Indication is received at both ends to indicate when this has occurred, and a bi-directional data channel from end to end is opened for use. This data channel carries multiplexed multimedia data between the stations. A device-independent call control mechanism is integral to all VMCS server components (Virtual Connection Objects) and operates directly to manage the call states and related operations required to create the

related operativity operations as as a consequence of the connection and data channel.

connection and data channel.

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2) Mode initialization on initial channel (H.242) An exchange of device capabilities takes place once the connection is created and frame alignment for the data channel is achieved. It is at this time that the VCO call controller 20 initiates sending its own capabilities to the remote station. It also receives and stores capabilities sent from the remote station A Euro common base-level audio mode is selected by the stations according to availability indicated by the exchanged capability sets. In the VMCS, any connection established must engage in the exchange (or emulate the exchange) of a capability set. A minimal bi-directional data channel must also be established in this phase. A capability exchange 30 between stations can be initiated from either end, and may reoccur at any time (while connected) to assert a new ability recently assumed by a

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station; a device may be turned on or off during the session, thus changes the stations capability profile.

- Call setup of additional channels (if used) 3) 5 Though not al ways used, the VCO supports connections of two separate lines. While network configurations may use six or more separate lines for a call, they are typically bonded together as and thus appear as a single line call to system call control. Call setup for additional ines proceeds in an identical fashion to that for od the initial chammel. We send prosting sessed duswibled, while the conhection is shift
 - Initialization on addition l channels (if used)

Though only used if additional channels have been established, capability exchange and mode selection proceeds as for the initial channel. en allemete materiernoment to an

5) Establish Common parameters (H.242) Both stations have available a list of the 20 pro stother's capabilities. Each VMCS has associated with it was specific conference profile parameter that is used to specify the operators preferred operating properties. Examples include a bias towards better video quality, or better audio 25 guality. Coupled with this profile is a set of operating modalities that can be supported by both ends of the connection, and the preference of the remote operator. According to the physical limitations of the remote station's device 30 capabilities, and in hopeful compliance with the preferences of the operator, a device mode negotiation mechanism seeks to algorithmically

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deduce the most suitable, set of device modes for the call by interacting with the remote station to realize them.

6) Visual telephone communication (H.261) This phase refers to the fully established session itself, whereby audio, video, and binary data exchange can take place over existing data channels. The H.320 Recommendation states that visual and audio communications must be active in this phase, though the VMCS allows for idle connections during which time no data exchange takes place; that is audio and video may be disabled, while the connection is still technically active. To noiserilarial

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When one user hangs up, an indication is sent to the other end to signal termination of the call, in the form of disconnection signals for all lines. Such action by one end, initiates the call termination process; the initiating station shuts down all of its data transmission to the remote station. Out-band signaling is typically used for the purpose of disconnection. bear wintend

operating properties. Exemples in:

8) Call release Once termination has been initiated (when the other end receives this message) the station sets data transmission to idle for each disconnected channel. When all lines in the call have received disconnection events and been set to idle, the call is considered to be disconnected. Individual lines can be added or removed as needed, without disconnecting the entire call. wold through

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VMCs SYSTEM OVERVIEW MAR TO COV edit ebicom FIG. 2 depicts an overview of the major components of a Virtualized Multimedia Connection System. There are four significant entities shown: The Virtual Connection 5 Object (VCO), the Virtual Connection Object Client Application (VCO Client), I/O devices, and the network. The VCO and the VCO Client are the subject of this disclosure. The 170 devices are connected with a direct physical link to adapter boards in the host system that permit the physical control of the I/O devices via device driver. Essentially, the only link the VCO has to these devices is through a vendor-specific Media Access Control software layer (or some other device driver), and the VCO link to the network interface unit is through a 15 standardized, of vendor-specific hetwork protocol stack. The network protocol stack shown in the drawing is likely some OSI Transport Layer abstraction of a connection service. wan ನಡೆಗಳ ರಿತ್ಯಾರಕ್ಷಣಾಗಿಕರ ನಿರ್ವಹಿಸಲಾಭ್ಯಾಣ (ರಿತ್ಯಾರ್ವಕರ್ಗಳು ora lements. Mose timporteru us tos the ablique to become

Summary of VMCS System Overview

20 From a conceptual standpoint, the VCO combines the services of the data transfer (network) service with associated media transducer devices, so as to reliably offer system command and control of a derived multimedia connectivity service to an application program. There are 25 two primary components of any VMCS; they are as follows:

The Virtual Connection Object (VCO) encapsulates all of the server components that are required to abstract a virtualized representation of the media control and connectivity sub-systems, offering it to device-independent connectivity clients. (130) plication (VCO Client) constructs and utilizes the virtualized

multimedia connection services hidden away

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inside the VCO by manipulating its member functions and member data. There are a number of specific objectives motivating this object-oriented system design, the substance of which receives commentary below:

System Design Objectives
Design-level Support for VMCS Services

The objective of the VMCS design is to provide design-level support for a full virtualization of any 10 multimedia connection system, so that device-independent representations of a logical control mechanism could be ported to a wide variety of supporting media control os devices and network interface Client applications designed to utilize VMCS technology are interoperable 15 with every VCO implementation (running under the same operating system) and thus more efficiently distributed, maintained, supported, and redeployed with new device Most important is the ability to bind any complements. network interfaces to any media control interface by the 20 addition of specialized hardware and software layers that combine the functions of these components without affecting its mechanism of control New and different underlying technologies are well utilized, however the extensible VMCS virtualization paradigm leaves their 25 often peculiar operating procedures fully obscured from the view of application programs.

Progressive Isolation of Sub-system from Applications

The VCO component of the VMCS incorporates a
number of design methodologies whose purpose is to

dissociate the control of services, from their physical
implementations. The Open System Interconnection (OSI)
Reference Model (see B. Hebrawi, OSI Upper Layer
Standards and Practices, New York, NY, McGraw-Hill,

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pp.11-15, 1993) and object-oriented programming languages are primary building blocks in any VMCS.

OSI Layering underpins the structure of the VMCS in that the VCO is a logical encapsulation of all of the OSI layers below **ត្ត** ក ទូ២៣ ខែ១ និង ២១ the presentation layer. The VCO members themselves comprise the OSI Presentation Layer implementation, whereas deviceindependent routines in the upper VCO layers form a discreet and reusable OSI session inga malasi pangunon si ar

Class Structure of the VCO is rigidly defined so as to preserve the largest number of mades the functional source components from modification, and to maintain the design integrity of the VMCS. Class components allow for a definitive specification of distinct, isolated functional units that will not affect their interactions with related 20 components when their internal implementations have been modified to accommodate the operational characteristics of vendor-specific components.

Discreet Member Profile preserves the modality of the interface that makes each and every VCO implementation appear the same to clients, and consequently it is most essential to maintain its form to enable interoperability for all clients. VCO Clients assume that the specific member profile of every VCO is identical, thus each can be invoked and utilized without concern for incompatibilities between them.

Token-based Job Description Language is a text-token representation of the VCO member

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enumerated arguments. If the structure of the VCO interface is consistent (over time) and reducible to simple string commands, then it is possible to reduce the control of any VCO to a series of text messages in a character stream. From this approach is derived the capacity to remotely control a VCO. User applications are almost entirely isolated from the server component in that each server (VCO) functions as a command interpreter.

Client Components

dain fraction sufficient of a carrier of the CC client in FIG. 2 is a device-independent sure afrecommon surprise is a device-independent. layer that is dynamically portable at run-time to other of DCS not post the sub-systems. All VCO-encapsulated multimedia connectivity sub-systems. All VCO Clients are fully interoperable with all server (VCO) layer components that offer a consistent presentation (OSI Presentation Layer) constructed according to an interface specified in this document. Notification calls from the VCO to the client can occur spontaneously, asynchronous with other system events, and concurrent with notifications emanating from other VCOs invoked by the same client, thus most client modules should be designed to support re-entrancy and mutual-exclusive 25 access to resources. A multithreaded implementation strategy is most efficient to manage the various, often concurrent tasks related to simultaneously maintaining the visual information presented to the user, and supporting the command, control, and real-time monitoring, of the multimedia connectivity sub-system. Regardless of the frequency of device interrupt requests or the rate of message passing between interconnected stations, the flow of notifications from the VCO to the client is conducted according to a dynamically configurable interval that a

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client can optimize according to its particular needs. In reality, the client runs at operating system speeds determined by the system scheduler, while low-level device control components in the VCO run at device speeds 5 determined by the network and the devices themselves. Resultantly, VMCS systems share the following characteristics: Population of the characteristics

Applications can vary the periodic rate at which they are actually notified of device events occurring sporadically, in real-time Applications never miss events, and are never s and ideas of funable to respond to them due to their a occurring in time slices not allocated to the application. The vco hotifies its client application that a particular event has occurred, by scheduling the application to run, in response to that event, on a special thread created by the VCO event dispatcher. Application processing of device events

catches up to the rate at which the device manual call produces them, by continuing to send notification of events to the application during 1/0 latency periods when the device is contants cailing a transportation as

Critical section handling, as related to device interrupts and the management of device driver queues, is fully managed by the vco, thus the application may process notification events at a high-level; it is, 30 La Cationega by design, hearly impossible for an application to corrupt the timing and realtime operation of the low-level device control sub-system. The application sees these sub-systems as a stream of interesting

nd system **schedal**er i wbile instave og

absau and events, none of which requires attention for absors proper VCO operation.

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Application Shell

The application shell is preferably an event-5 driven graphical user interface (GUI) program written in an object-oriented programming language. There are no special considerations for VMCS integration. Retrofitting of existing GUI programs, to work as VCO Clients, is easily accomplished. In fact, any application shell that 10 constructs a VCO is defined as a VCO client, and only a modicum of member functions need be called to establish a fully operational connectivity session to a remote station. A daemon that constructs a VCO, and fields string commands from a hardware or software data port, 15 can serve as a non-interactive VCO client.

in response to that event, on a sport of Notification Receiver Objects (NRO)

These software objects are created to provide a structured mechanism for responding to VCO events. Any application class object can contain a specific member 20 function and adjunct function mapping component to direct the VCO to send a notification message to that object upon the occurrence of any set of specified events.

VCO Components and has signamental equation The VCO utilizes a three-layer software design 25 that converts the native modalities and properties of some set of physical devices to those that can be accurately described using the parameters specified by the VCO. Underlying the software components are device control components used to physically operate the media 30 control and connectivity sub-systems. These low-level components, and the devices that they control, are

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typically provided by a third party specializing in their respective technologies.

The Virtual Device Interface (VDI) and shows dawn

Provides a logically-defined, or virtualized interface to services that would be offered by an idealized, functionally advanced combination visual telephone/imaging system. The VDI is a reusable shell that is common to all VCO implementations (in a given OS):

the and taken all the same of Soldiangs of these just of

10 Virtualization Layer (VL)

Translates logical operations defined in the VDI, to physical implementations (of those most similar) provided by the PDI. The VL is set of mostly reusable routines that are, as needed, partially reimplemented to work with a particular device set in the PDI. In many cases, VL components may include direct accesses to vendor-specific connectivity protocol stacks and media control components.

Physical Device Interface (PDI)

Provides a physical, or driver-level interface to actual physical devices assigned to the control of the VCO implementation. The PDI inherits virtualization functions from the VL to provide a rigidly compliant implementation of a device control interface used by the VDI directly to provide support for its logically defined tasks. PDI implementations include direct accesses to vendor-specific connectivity protocol stacks and media control components.

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Encapsulated Devices

The encapsulated devices in a VMCS typically include a network interface unit and a host of related

media control devices. The connectivity protocol stack refers to the software layers necessary to provide services defined for the OSI Transport Layer; that is, it must ensure the reliable, transfer of messages between end users. Media Access Control must contain drivers enabling physical operation of all devices relegated to VCO control, as previously specified in the section entitled DEFINITIONS. The types of devices likely to be incorporated into the VCO design, will be some variation upon those described to manage audio, video, images, and binary data, as specified in the section entitled I/O Equipment.

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There are well-defined modalities, of interactions is 15 between VMCS components. The VDI makes direct use of PDI members to invoke the services of physical devices in its mission to fulfill VCO Client requests for services. The PDI, in turn, calls functions in the connectivity protocol stack and in the Media Access Control layer. The 20 PDI calls member functions in the VL to provide the mapping, translation, and formatting necessary to coerce T the low-level services to resemble those logically specified by the VDI. As they occur in real-time, events generated by the connectivity protocol stack and Media 25 Access Control components are added to a general VCO event queue. A dispatcher in the VCO removes events periodically, synchronous with the operating system scheduler. An event processor in the VL responds to events as they are dispatched, to it, invoking other VCO 30 components as needed. Some of these events require that the client application be notified of their occurrence, if the client has so arranged. EDIFVAT LATELIESTATT

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FIG. 3 depicts a functional block diagram of a VCO, with components partitioned according to the VCO layer where they reside. This section provides a high-5 level view of the VCO sub-components functional organization. Subsequent sections pursue a more rigorous examination of the constructs themselves, here only topically considered. It is more important to note that the VDI, VL, and PDI sections labeled "Device/Protocol 10 Controllers are to be considered as layer-specific overlays of the same groups of components. The groups in the VDI section "Device/Protocol Controllers" illustrate " the logical definitions for each of ten distinct functional categories, corresponding groups in the VL and 15 PDI describe the identically functional categories, but at a different level of software abstraction. All components in the VDI section are fully reusable, deviceindependent software components. Those components in the PDi are vendor-specific and implementation-specific while 20 those in the VE are mostly device-independent, but may require some implementation-specific coding to support wide variations in the underlying device control software.

Software components in the VCO are physically
divided into very specific object entities, each of which
much interact with those adjunct and adjacent. A set of
related functions and data structures combine
synergistically, are referred to as a controller. Such
entities are the basic functional units of the VCO in
that they form discreet functional "parts" that control
and/or manage a well-defined set of tasks.

Summary of VCO Architectural Overview

INTERNIT OF THEIR PROPERTY OF THE PARTY OF T

The VCO is a single binary software object that encapsulates all of the hardware and software components

necessary to implement a fully Virtualized Multimedia
Connection System, Virtualization of the services
provided by disparate connectivity and media control
systems is rendered according to three-layer progressive
abstraction strategy that relies upon object-oriented
software technology for both its design and
implementation.

A device-independent, reusable software layer call the Virtual Device Interface (VDI) is created to provide a detailed logical the managed description of a virtualized multimedia of connection service of has as sets of public member functions that define its interface to to a decimal applications and other invoking software a 15 your last modules: Included in this layer are a series of tis of software controllers that are specifically which will here located (in this logical layer) atomorphisms the larger parts of the system's or software implementations in a layer that ... would be directly propagated to new system implementations, wherefore to facilitate the creation of a highly reliable, reusable portable modules. وروافعت والمحور

• A mostly reusable, and predominantly deviceindependent intermediary software layer
called the Virtualization Layer (VL) is
created to assist in the process of
translating and mapping the functions of
various device control mechanisms employed by
the underlying connectivity and media control
sub-systems, to the logically defined virtual
representation required by the VDI.

A device-dependent layer called the Physical
 Device Interface (PDI) interfaces directly to the device control sub-system to provide a

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physical implementation to the service requested by the VDI. The PDI makes use of virtualization functions in the VL to coerce the particular message and data output formats of vendor-specific device control components, to a structured format integral to the VCO design.

• Audiovisual and binary data streams in the PDI sub-system are represented as Media 10 A list of these objects is maintained by the PDI so as to the vector and present the vector with a pool of available nedia device and signal resources. to the media type, and its direction of flow in the system, these MCOs are classified accordingly as either an audio, video, image, or binary data type. They are further characterized as a signal from the remote station, to the remote station, to a local output device, or from a local output device. Operations performed on these objects modify

their properties and modalities of interaction, so as to provide the VCO with a logical software switching mechanism for its encapsulated media control device inputs and isminias outputs. ber thousand ought Laurence bas total jusquie

Virtual Device Interface

The device-independent portion of the VCO, is a fully reusable entity that is created once, and then 30 propagated to all VCO implementations. It contains the definition of all the VCO public member functions accessed by clients. These members are collectively referred to as the Software Control Interface (SCI), which itself includes a number of other VCO control

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mechanisms whose functionality extends well beyond simple calls to members. The VCO event notification mechanism and terminal stream I/O manager are integral to the VDI, as are ten controllers related to implementation of the 5 services requested through calls to SCI members.

Software Control Interface Functional Groups

These groups of "control members" contain the member functions used by clients to invoke VCO services. Each relates to a set of public VCO member functions used 10 to access a specific class of well-defined operations.

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Event Notification Control Members enable the creation, deletion and configuration of "Notifier Objects" (NO) that may be Sellings to programmed to trigger on the occurrence of 15 any one of a defined set of VCO events. When mandina a Notifier Object triggers, it make a function call to a special member function of a specified object, and thereupon conveys information concerning the event that occurred. Pridational Efficient

Configuration/System Setup Control Members enable VCO configuration information to be saved to, or retrieved from backing store. Terminal Services Control Members enable

writes of text messages to VCO terminal output port, and command input through the VCO terminal input port. They also allow the VCO terminal output port to be attached to various output devices

Network Session Control Members enable establishment of a network session with a remote station. They include members to invoke initialization and shutdown of the physical device control sub-system, as well

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as to place point to point and multipoint carise dadr signed outle sib se .u. gilarear . Audiov: Sual/Data Signal Switching Members enable signals to/from the remote station, and to/from transducers to be manipulated, combined; and interconnected in various combinations? 医乳洗洗涤 计二字 整磷石 Binary Data Object Exchange Control Members the element enable buffers, files, and other binary data 10:33 Land Wentities to be transferred between the local sagastations. And remote stations. Assistant System Information Store/Retrieve Control emadements que embers enable access to VCO parameter blocks The containing information about their encapsulated devices, current call states. 15 protocol states, configuration, and control/monitoring context. Protocol Management Control Members enable direct manipulation of the H.320 protocol whose implementation is integral to the VCO. 20 Allows advanced operators to perform midlevel operations to configure the VCO, and any connected remote station, according to the procedures of H.320. Tullatura Lagure.

25 Notification Controller Dem Maria design of the

This notification mechanism is used both invernally by the VCO, and by client applications that wish to monitor, or respond to specific system events. A Notifier Object is created, and programmed to respond to any subset of the cataloged VCO events. If the event occurs, a special notification member in a target object is called and passed information regarding the occurrence of the event. The Notification Controller refers to all of the member functions and member data necessary to

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implement the notification mechanism in each VCO. It contains three distinct parts that operate both independently and together depending on the notification task at hand.

Notification Triggering Mechanism is responsible for determining exactly when a Notifier Object should trigger, by examining its list of triggering events when one such event occurs. If the Notifier Object is set to trigger on the event, it is activated to initiate its trigger sequence, thereupon informing a specified software object that the event has ocquired; it passes parameters during a call to a potification member

15 Justin Jiss function amply so bedsing one

for creating, deleting, modifying, and querying a database containing all Notifier Objects for the VCO

located to required at the

Linked Notifier Object List is a doubly linked list of all Notifier Objects for a VCO, and it is maintained by the Notifier Object List Manager

Terminal Stream Controller

25 This terminal stream mechanism is used both internally by the VCO, and by client applications that wish to direct streams of text messages to a configurable set of terminal output port destinations that may include files and system character devices. Alternately, streams of text messages directed to the VCO terminal input port are interpreted as VCO commands and invoke standard VCO operations. This Terminal Stream Controller refers to all of the member functions and member data necessary to implement the terminal stream I/O mechanism in the VCO.

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It contains three distinct parts that operate both independently and together, depending on the terminal operation 2 (10 mod damperate dresses additional

Terminal Stream I/O Device Controller is responsible for processing text messages sent to the VCO terminal input and output ports, in addition to managing the list of I/O Jacks devices OV sale and animals

Text Command Encoder/Decoder is comprised of two separate components: the encoder portion converts calls to the SCI into text-token string command representation used for remote vco control, and the decoder parses an input stream of such text-token string commands and 15 makes calls to the SCI as indicated by their video, inche, and binaryanto equipment - ne

Linked Terminal Stream I/O Device List is a doubly linked list of all terminal I/O device objects that describe the identity and status for all character stream files, and devices to which text messages sent to the VCO terminal output port are written.

Device/Protocol Controllers mean be assistant

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This group of controllers serves to support the 25 implementation of the logical operations invoked by calls to SCI member functions, as well as providing implementation of operations necessary to the establishment and maintenance of a connectivity session. The implementations of services in this VDI component 30 must be only that portion of the given operations that can be supported in a fully device-independent manner. Object Construction refers to all procedures and data structures involved in the

construction of the VCO, including

none or initialization of all object software that do not components that do not control devices. Provides direct support for operations part invoked by construction of the VCO by a client application graitment Object Destruction refers to all procedures and data structures involved in the destruction of the VCO puby its client application, including shutdown of all object software components. Configuration/System Setup, refers to all procedures and data structures involved in configuring the VCO according to its profile, base where control previously saved on a backing store device. Also includes support for specialized audio. video, image, and binary data equipment setup utilities. Provides direct support, for Liver Oly 188 perations defined for the SCI Configuration/System Setup Members. Binary Data Object Exchange refers to all procedures and data structures involved in the transfer of named binary objects, such as system files, to and from the remote station. Provides direct support for operations defined for the SCI Binary, Data Object Exchange Control Members. No Hoursant Wellam 22 Network Call State refers to all procedures and data structures to support a call controller compliant with that described in the section entitled Visual Call Progression, and consequently function to establish and maintain the connectivity session with the remote station. Provides direct support operations for internal VCO connectivity sessions.

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System Information refers to all procedures and data structures involved with storage. retrieval, and maintenance of the various VCO parameter blocks, and their associated tables and lists. Provides direct support for operations defined for the SCI System Information Store/Retrieve Control Members. Capability Exchange refers to all procedures and data structures needed to support a 10 structured exchange and comparison of device capabilities, as described in the section ed sa carrentitled Visual Call Progression. Provides direct support operations for internal VCO connectivity sessions. System Exception refers to all procedures and 15 data structures involved in handling fatal errors that may occur in the VCO. Provides and a direct support for operations defined by SCI

VCO Settings Members not shown in the AND TERROTTANENT WEST TO BETT TO BE TO SEE THE OWN OF THE PROPERTY OF THE PROP

- Media Control Object Access refers to all procedures and data structures involved in accessing the object-based device control system implemented in the PDI. Provides 25% some and and direct support for operations defined for the War 122 Control Ser Audiovisual/Data Signal Switching Control Members (that are not shown in the drawing.)

procedures and data structures involved with establishing a common set of parameters between the local and remote stations as A COLOR DESCRIBED IN the Section entitled Visual Call The removecorprogression. Here also lies support for os operations that will affect a specific

Protocol Mode Negotiation refers to all

conference profile as specified by the VCO's 35

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configuration parameters (or as set by the client application); includes support for operations essential to internal VCO network session implementations

unt tranque, merci mabirous natain 5. Virtualization Layer, meritain adults in

Contains all procedures and data structures used to convert vendor-specific formats to those defined by the VCO. This layer also contains a number of controllers that are not always able to be implemented in a device
10 independent fashion, as some cognizance of vendor-specific peculiarities is frequently necessary to create a functional virtualization service layer.

consectivity sessions.

Event Controller or exerter cold quous sedons

Assigned responsibility for modulating the flow

15 rate of device and software-generated events, in and out
of an event queue. The queue acts a storage repository to
record both the progress of operations garried forth by
the VCO, as well as reports of new states and modes
assumed by its underlying real time device control sub20 system. In general, devices and VCO controllers perform a
mutually exclusive addition of events to an infinite
sized event queue, in real time. A dispatcher removes
them at a regular periodic rate, and disseminates them to
an event processor, and to client applications desirous
25 of knowing that one (of a particular set of events) has
occurred.

• Event Processor provides a structured mechanism for the VCO to respond appropriately to events generated by its device control sub-system. It maintains a number of feedback loops and procedures that are critical to enabling the VCO to adequately monitor and control its

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connectivity session without assistance or monitoring by the client application. Periodic Event Dispatcher checks the VCO event queue at regular intervals to determine if it contains any events. If there is at least one event in the queue, the dispatcher removes it (a single event) and invokes the Notification Controller to trigger any Notifier Objects that may be configured to respond to that event.

Infinite FIFO Event Queue provides a and was some and sequentially ordered cache for all events emanating from the device control sub-system or for events generated by software components within the VCO. It operates according to the first-in-first-out algorithm so that the original sequence at which the events occurred, is preserved through the event processing stage. Since the queue is constructed as a linked list of event records, it is capable of growing to a size limited only by the availability of system memory; thus events are never lost in any off to while views to the

> Critical Section Handler provides a mechanism to add events to the event queue in a mutually exclusive fashion. Also, various VCO operations that could result in resource contentions and deadlocks can utilize this component. neglinent in link granter danter bar en er er e

Linguistic Controller

Assigns textual labels to VCO events, states, operations, and a host of other functional entities, in a way that describes them using plain language. The role of

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this controller is to enable VCO components to report the status of their operations in a readily-understandable format, rather than by the encoded strategies typically employed in computer systems. Various VCO controllers derive descriptive text messages from the labeling facilities offered here, and then send them to the VCO terminal output port.

Event Labeler Mechanism provides functions to return string labels for various VCO events of all types. In addition to returning text labels for the standard VCO notification events, this controller supports labeling for the generalized class of VCO events that includes all of the enumerated states, constants, modes, and string tokens representations of the arguments used by the Media Control Object Device Control Mechanism. The command encoder/decoder mechanisms also rely on the services offered by this component.

Object Component Labeling Mechanism provides labels for VCO objects and constructs that are used to report the current location of execution, or processing, in terms of the names of actual VCO components invoked.

Contains the names of the VCO classes, controllers, an mechanisms that are used to formulate precise reports for debugging, diagnostics, and general troubleshooting of VCO components.

Event and Object String Label Database contains tables of text tokens and string messages accessed by the event/object component labeler mechanisms.

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A. J. Device/Protocol?Controllers 109711 asolven

The Device/Protocol Controllers for the VL and PDI layers, as shown in FIG. 13, represent the contribution of each layer in producing the virtualized multimedia 5 connection services logically defined in the corresponding VDI concroller (that occupies the same physical location on the drawing relative to the group of Device/Protocol Controllers This group of VL controllers serves to support the implementation of the 10 device-independent procedures and operations supported, at their highest level, by the corresponding controllers in the VDT. As the VL controllers are specifically Virtualization Layer components, they serve to support athe simplementation of Wil controllers by providing any 15 necessary coercion of data format, command syntax, or interface method, from a vendor specific modality, to that defined for the VDI. In many cases, the VL supplies a standardized function supporting a like standardized VDI function, but the embodiment of that in the VL is 20 fully intended to be implementation-dependent.

software component Load/Initialize provides implementation-dependent mechanism to load and initialize all supporting software modules, Pibraries, and device drivers

25 constructor, the VCO construction fails if all necessary components are not present or fail to load. No devices of any sort are initialized or accessed explicitly here, except to determine if they are installed.

Software Component Unload/Shutdown provides implementation-dependent mechanism to unload all supporting software modules, libraries, and devices drivers. Does not shut down

devices directly, but does free all resources reprocessor and community of the communi Configuration Information Access provides any necessary mapping of gonfiguration information from/to the format used by the backing store method Typically reads from/writes toga string-based initialization file and translates the string token format to that used by the VCO configuration 10 parameters. deliberura carbesus de securio de la companio del companio de la companio de la companio del companio de la companio del la companio de la co Data Exchange Syntax Mapping provides mapping of file and record formats to that utilized by the connectivity protocol stack to that was made wormused by the host toperating system. Examples o wadrive include conversion of buffers and files 15 The server of the medical packet formats a poster of the server of Call Event Mapping provides translation of vendor-specific connectivity protocol stack representation of call and line states to those used by the VCO call controller. 20 • System Information Mapping provides translation of various vendor-specific representations of system information to/from those used by the VCO, and tenables 25 translation of Media Control Object Device Control operations to H.221 device modes. Specific translation examples include call destinations, and media device states. • Capability Mapping provides translation of 30 local and remote station H.221 capabilities emanating from the network protocol stack to those used by the VCO. Includes mapping of H.221 capabilities to Media Control Object a a street

- e Bystem Exception Mapping provides translation of Warlous fatal errors from vendor specific components to standardized VCO exceptions.
- Media Device Driver Access Mapping provides

 translation of Media Control Object Device

 Control operations to Media Control Interface

 string commands that are presented to the

 Media Access Control layer.
- Protocol Mode Mapping provides mapping of

 H.221 bit rate allocation signal (BAS Code)

 indications used by the connectivity protocol

 stack (or emulated) to the device-independent

 representation used by the vco.

Physical Device Interfacent norrangianos

Contains all procedures and data structures used to interface device drivers and operating system resources directly. All implementations of functions are assumed to be device dependent, and it is the principle objective of this layer to locate some form of physical, 20 or emulated support to realize those operations logically defined in the VDI. If the PDI cannot provide, or even emulate, a service specified by the VDI, then it must return a result code indicating that it is not capable of doing so. One recover ages and the service of this later and the service of the

25 Device/Protocol Controllers di vela liere

The Device/Protocol Controllers for the PDI layer represent the contribution of this layer in providing the physical interface component of the virtualized multimedia connection services logically defined in the corresponding VDI controller. This group of PDI controllers serves as the physical implementation of the corresponding operations managed by controllers in the VL. As the PDI controllers are specifically physical

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layer components, they support the implementation of VDI controllers by directly accessing device drivers and vendor-specific library software components provided by third party OEMs; in the most efficient designs, the PDI may be implemented as an actual device driver, directly controlling hardware.

- oem Support Libraries and Drivers provide specialized functions, such as image processing, digital signal processing, data port interface, and system diagnostics, that are vendor specific and usually hardware-specific.
 - configuration Information Backing Store is
 the physical device that stores the VCO
 configuration information. Usually a file on
 the physical device on the stores of non-volatile memory
 that a street of the stores of non-volatile memory
 that are the stores of the stores of the stores of

e Connectivity Protocol Stack is the actual interface to the network, and includes all associated hardware and software components.

The network service is presented to the VCO session components and transducers at the level of the OSI Transport Layer, whose responsibility it is to ensure reliable transfer of messages between end users. The Network and Data Link layers must be available, in some form, below the Transport Layer, and a physical or emulated network interface unit must be present and detectable.

 Media Access Control provides physical device control mechanisms for input and output transducer devices in the system. This driver complement is used directly to implement the PDI's defined set of device control interface

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functions used directly by the VDI, as well as by the Media Control Object Device Control Mechanism.

Device Capability List resides in the PDI as the master list of the all of the VCO capabilities. It is stored as an array of device-independent capability constants that reflect the range of H.320 (H.221) capability BAS codes.

Device Mode List resides in the PDI as the master list of the all of all possible device modes for any H.320 compliant station. It is stored as an array of device-independent device mode constants that reflect the range of H.320 (H.221) mode command BAS codes.

Media Control Objects (MCO) are constructed and maintained by the PDI, and presented to the VDI, as a method to control all signals to and from remote stations and transducers under VCO administration. The PDI interacts directly to support the device-dependent implementations that underlie these device-independent representations of

audiovisual/data signals and devices as
discreet system objects, each possessing a
structured set of properties and well-defined
operations.

VCO SOFTWARE ARCHITECTURE System Dynamics

It is useful to consider the VCO as a mechanical device, much like a spring-driven mechanical clock movement. Each VCO is a self-contained machine of interlocking parts, with a system timer interrupt advancing its works by the increment and released in

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balanced measures that bring stability and smoothness of operation to the system's "top" end. The VCO's analogous "unwinding" takes place with the literal precision of a clock's escapement mechanism, in that the system timer 5 serves as the regulatory entity releasing a steady pulse of queue-stored activities from the device control subsystems, to a client application. A Virtualized Multimedia Connection System presents not only an idealized control mechanism to applications, but also 10 idealizes the rate and content of the system's responses. to these controls, without ever losing a system event, state change, mode change, exception or interrupt request. The overall VCO design is consistent with that of multi-threaded, gueue-based device driver designs that 15 account for a significant portion of the dramatic gains in reliability and performance seen in the use of 32-bit, multi-tasking operating systems such as IBM's Operating System/2 (see H.M. Deitel, M.S. Kogan, The Design of OS/2, Reading, Massachuetts, Addison-Wesley, 1992).

openios galei 10% and chalcombalminiana www.mainw 20 Notes On Drawing

FIG. 4 depicts an a detailed diagram of the major components and control flows of the Virtual Connection Object software architecture. The Device/Protocol Controllers shown are the same as those shown in FIG. 3, but the purpose in this drawing is to illustrate the direction of control flow through them, rather than to describe what they are. This discussion will examine the VCO in terms of its specific software mechanisms. To clearly show the functionality of individual VCO components in the two-dimensional drawing, it is necessary to alter their exact locations in the layering model from a perfect vertical orientation, to one more suited to revealing component interactive pathways.

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-Summary of VCO Software Architecture

The software architecture of the VCO is can be described best in terms of two major functions: (a) controlling the multimedia connectivity sub-system it 5 encapsulates, and (b) responding to events emanating from it. What ensues is a brief overview of outstanding features that characterize the dynamics of the VCO software model: to be subasine will asken and a

The Software Control Interface (SCI) contains 10 public member functions that enable a client application to access a consistent and logically defined multimedia connectivity coldant a service to create a live audiovisual Table 10 2 Connections to a remote station. Calls to these members invoke the various Device/Protocol Controller services in the various VCO layers until some physical operation is eventually performed, the result of which is translated to logical,

standardized result prior to being returned as forms to the caller.

Fach VCO contains a general repository for And the system information that is continuously The current states of all 25 Language Controllers and devices.

Leodro TEvery VCO has standard input and output terminal ports that function much like the standard input and output devices in operating system shell console devices. All text message sent to the VCO terminal output 30 port are written to a list of terminal I/O devices maintained by a Terminal Stream Controller. This controller also accepts text commands written to the terminal input port and decodes them, translating them to SCI 35

calls. An infinite FIFO event queue accepts the addition of events asynchronously, in real-time, by device control software, and by of moderna due of the components in the VCO that generate their own particular events. Quantum 2.30 18 18 18 18 An Event Dispatcher runs synchronous with the operating system scheduler (does not preempt the regularly scheduled time slices) to remove events from the queue at a constant, periodic interval and disperse them to a Notification Controller. Controller. The Notification Controller examines the dispatched event dispensing notification on the event via Notifier Objects that send the indication, and all associated information, to an event processor in the VCO (if the event is from a device), or to a client application object, depending on the Notifier Object's configured destination object. The VCO Device Event Processor invokes procedures to respond appropriately to events emanating from the device control sub-system, so as to maintain a connectivity session with the connected remote station. Call control,

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capability exchange, and various protocol operations are driven by the event processor, as is the issuance of text messages, describing all system activities, to the terminal output port. Most network events that require attention from the application in similar multimedia connection systems do not require such attention by VCO Clients; specific intelligences in the Device Event Processor component better direct them to

invocation of specialized internal procedures more suitable to such tasks, by their very designs feedback loops often found in the application Tayer, reside in the VCO proper, alleviating the application developer from implementing sensitive protocol-specific modules • Ubiquitous throughout the VCO's controllers are reporting mechanisms that formulate 10 detailed text messages describing the current state, mode, process, subroutine, class name, or event that is currently most relevant, and The of the terminal output the sadallarport. Can Event and Object Labeler working in conjunction with a string database, has features that can assign text names and terms, in addition to maintaining a texttoken definition of the VCO text command set. ver ver ver ver ver ver ver can link together across a connection to control or monitor the activities of the other station. This concept, referred to as attachment, utilizes a bi-directional text message stream to enable interconnected VCOs to share commands and events. Depending on 25 the negotiated configurations of the "attached" VCOs, calls to member functions in the SCI of one, are encoded into text commands by the Command Message Encoder, and transmitted to the other station. Upon receipt, the Command Message Decoder translates the text commands back to SCI calls. Correspondingly, events queued at one station, as well as results of operations, are encoded by the Event Message Encoder, and

35 transmitted to the other station. Upon

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receipt, the Event Message Decoder translates the text event messages back to events and adds them to the event queue, where they are dispatched along with a station identifier.

Software Control Interface printed to the

The Software Control Interface: (SCI) consists of the VCO's public member functions and protected data that allow client applications to control the VCO. Any request for service using the SCI must pass a number rigorous 10 examinations designed to reject any possibility of damaging the encapsulated sub-system. A client attempt to access a VCO member function results in an immediate set of verifications to determine if YCO is available for use, and if so, whether the context of the request is a man per second of the request is a man and the request is a man and the request is a man and the request of the request is a man and the request of the request 15 valid. For example, most operations require that the device control sub-system first be fully initialized. Arguments are checked for validity, and a text message describing the request is sent to the VCO terminal output port for tracing and monitoring purposes. If all 20 conditions have been met, execution continues to the next level; progressing typically to a further request to the PDI. Rejected requests are turned away abruptly, but the client is compensated for his diligence, with a fair accounting of the dismissal; every operation returns a 25 concise result code.

Member Punctions Member functions to invoke the services of the VCO are partitioned into several distinct categories. The members and their arguments are highly structured and 30 flexible in the variety of ways they may be utilized. They are easily mapped to a text-token command set. All of the members of this interface are available from one constructed VCO, and each optimized to best support the

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likely use of it, rather than providing similar access methods for all command permutations equally. The pathways through the VCO layers and components are unique for each functional group, and are summarized briefly:

Event Notification Control Members make calls to the Notifier Object List Manager to create, delete, and configure, and trigger Notifier Objects in the Linked Notifier Object List. Calls to trigger notification invoke the Notification Triggering Mechanism directly.

Terminal Service Control Members make calls to the Terminal Stream I/O Device Controller to add and remote devices from the Linked Terminal Stream I/O Device List. Calls to send text messages to the terminal output port are made through this object, as are calls to send text command message to the terminal input port for decoding and execution.

make calls to the PDI to store and retrieve configuration information from some physical backing store device.

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Network Session Control Members make calls to the PDI to initialize and shutdown the encapsulated multimedia connectivity subsystem, as well as to initiate and terminate sessions with a remote station.

Audiovisual/Data Signal Switching Control
Members make calls to the PDI to manipulate
audio, video, image, and data objects that
comprise the Media Control Object Device
Control System of the VCO.

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Binary Data Object Exchange Control Members make calls to the PDI to transfer binary data objects and data buffers to and from the remote station.

System Information Store/Retrieve Control
Members make calls that access the VCO system
information repository in a structured
manner; a manner which does not allow for any
direct modification of VCO data structures.

Protocol Management Control Members make calls to the PDI to directly set H.230 device modes, send capabilities to the remote station, and perform other protocol related tasks.

15 Terminal Service

The VCO terminal service has two main pathways: into the VCO through the terminal input port, and out of the VCO through the terminal output port. Alternately, when the terminal ports are considered as standard input and standard output devices for the VCO, it is sensible to view the two modalities as a stream "to the terminal" and "from the terminal".

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Output Streams to VCO Terminal originate from the VCO itself, or from client applications. Messages "to the terminal" are directed to the terminal output port and dispersed, via write operations, to output devices (attached to the terminal output port). Summary, "To terminal" is synonymous with "to text output devices."

Input Streams from VCO Terminal originate from outside the VCO, typically from a dumb terminal or client application wishing to control it with text commands. SCI calls

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sending text messages as if "from the terminal are directed to the terminal input port and interpreted as input text command messages, as if input from a keyboard. Summarily, "From terminal" is synonymous with The from the standard text input device." Torminal Stream 1/0 Device Controller Time 1 2 % To maintains a linked object list of output device objects to which the text message sent to the terminal output port are written. All text messages sent to the terminal output port are written to every device cataloged by and Description the linked bobject Tist. Output devices walled a commende system files, character devices, and 15 Notifier Objects created for the transmission of text message to objects.

System Information Handling strains and not

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System information is fully protected from direct external access the VCO, though all internal components 20 can access it directly. Clients must us specific member functions to get a copy of the data, and use other members to affect changes to it through structured operations. Internally, all system parameters are fully accessible to all components derived from the VDI.

because Miconfiguration Parameters store the current Tooling to Toopy of VCO Configuration and system setup information that is read from backing store at vco construction time. Contains information about the network service available, and all system defaults. The parameters can be modified and written back Home Time to backing store at any time. Device Parameters store all settings and

parameters related to the

audio/video/image/data devices installed in
the sub-system, and retain handles to the
current source, destination, input, and
output signals affected by the Media Control
Object Device Mechanism.

• Call Parameters store all of the current call and line states, including those for multipoint calls. Maintains records about other stations in the conference.

Protocol Parameters store all current transmit and receive modes for all the various data types.

Control Prameters stones alk information

15 control mechanism for any attached station in the Monitor Parameters store all information

related to maintaining the monitoring access

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Notification Mechanism Append 1977 sam success sections

indication that a particular event has occurred by activating, or "triggering", a notification entity referred to as a Notifier. Maintained in a list internal to the VCO, Notifier Objects are created specifically to call a member function of some appropriately enhanced class object, somewhere in the system (within or without the address space of the VCO) when triggered. Upon the VCO event dispatcher's presentation of an event to the Notification Controller, Notifier Objects in the list are systematically examined, and potentially triggered, according to a specialized modality of governance that considers the relationship of the outstanding event type (among other parameters) to the triggering profile of the Notifier Object itself.

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Notifier Objects (NO)

These objects comprise the basic indication unit of the VCO notification mechanism. Each NO is an instance of a class object that may be created by a VCO client, or 5 the VCO itself, and configured to "trigger" in response to the occurrence of any one of a set of VCO events. Each NO is associated with a specified Notification Receiver Object (NRO) to which the trigger response is directed. When an NO triggers, it makes a function call to the 10 associated NRO member function assigned to the task of handling notifications. Passed to the NRO is an event identifier, and a number of qualifying arguments that describe the context of the event's occurrence. There are two mutually exclusive modalities for any NO; they can be 15 configured to respond to any event, or configured to respond only to events emanating from VCO-encapsulated devices. application. Fitifict Objects configured to c

Notifier Management 1020 Leolisco dell'ylopedil apport

This task is handled by the Notifier Object list
handler. This component adds to, removes from, and
maintains the integrity of the Notifier list. It also
provides members for configuring Notifier Objects with
new trigger response profiles, as well as to allow them
to be enabled, disabled, and examined for statistical
information. In the VCO, the notification mechanism is
supported by a component that manages the list of all
active Notifier Objects, and a triggering mechanism that
determines as to whether or not an individual Notifier
should trigger, based upon the occurrence of an event to
which it is configured to respond.

Triggering Mechanism for Notifier Objects

This mechanism conditionally determines as to whether or not a Notifier Object should trigger, based

upon a specific algorithm. Notifier Objects can be configured to respond to events that emanate from the device only, so as to direct their trigger response to the VCO Device Event Processor. Through this method, the 5 VCO uses Notifier Objects internally to create a direct pathway for device events (added to the VCO queue by the device), to be processed in the VCO Device Event Processor exclusively. This distinction serves to prevent an infinite loop that would result if the VCO processes 10 an event from a device, and then reissues (requeues it) it so that client applications can be subsequently. notified of the same event -- the same event would be dispatched back to the event processor again and again if reinterpreted as another occurrence of the same devices 15 event. Thus a distinction must be made between the original device event and a processed derivative of that same event intended for dispatch to the client application. Notifier Objects configured to trigger on events directly from devices will only trigger on events 20 directly from devices. When the event processor reissues the event from the device, it marks it to indicate it is not directly from a device, and it can no longer trigger the Notifier that would send it to the Device Event Processor. ್ರು ಕಥ ಸ್ಥಿತ್ಯ ಆ. ೧೫೯೭ ಕೊಡ್ಡು ಎಡಗಾರ್ಡನ್ನು ಸರಕ್ಷಾಮಿಂದ ಸರಿಗ

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Notification to Clients VCO Client applications may request notification of a combination of VCO events by creating a Notifier Object and configuring it to trigger when any single event in the combination actually occurs. Once created, 30 the Notifier Object conveys event notification to an , ... application object set to that purpose. The object that receives notification is referred to as a Notification Receiver Object (NRO).

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Notification Receiver Objects (NRO) receive function calls from an entity in the VCO that is created specifically to direct notification of the occurrence of an event to them. A class object can serve as an NRO if it contains a special Notification Receiver Member and an attendant thunk. The thunk is a globally accessible function that is created to receive notification from the VCO and redirect that notification to the NRO's Notification Receiver Member. In this way, a vco can deliver a notification message to a delate class object which can then directly access other class members and member data that would not be available if the notification was to a non-member function i.e. had to access class members with a special class pointer.

Notifier Triggering Profiles refer to the set of events to which the Notifier Object is configured to respond. Notifier Objects are "triggered" to notify their associated NRO when one of these configured events occurs.

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Event Handling Mechanism

The event handling mechanism consists of three concurrent, but distinctly separate processes. From the perspective of any single event, these processes occur in a serial fashion. First, events are added to the trail of the VCO event queue by various VCO components. Next, a 30 concurrently executing event dispatching process periodically removes an event from the queue. Finally, the event dispatcher sends the removed event to the Notification Controller where it triggers Notifier Objects configured to respond to events of this

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particular type. If the event is a device event, and the Notifier is configured to respond to device events, then its Notification Receiver Object receives notification that the event has occurred. If the event removed by the dispatcher is some derived event, it may trigger notifications to client application, or any other Notification Receiver Objects targeted by a Notifier responding to that event:

Device Events

These events are generated directly by a device in the encapsulated sub-system; a situation that potentially requires some kind of immediate responsive action. They are the primary responses from VCO devices and emanated from network and media control driver software components.

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These events are generated by a VCO software component, and are derived from an action or logical state, not directly emanating from a device. They are the secondary responses from the VCO itself, often resulting from the processing of device events.

Event Processing.

The task of event processing includes the handling of both Device Events and Derived Events. Device events

25 can only trigger Notifier Objects configured to respond to device events, thereby enabling a particular Notifier Object to function as a dedicated device event notifier. Events entering the Device Event Processor are typically line state changes, device mode changes, and indications from the remote station. These events drive protocol and session management routines during processing, which in turn generates derived events such as the call state

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changes and Media Control Object Device Control parameter changes. These derived events are queued for subsequent dispatching to client applications; these secondary occurrences are treated differently from primary events in that they will not be handled by the Device Event Processor:

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Dispatching of events occurs periodically at a programmed rate that may be adjusted dynamically at run-10 time. Typically, dispatching five events per second is sufficient to present the client application with a manageable stream of events. The event dispatcher is driven by a system timer interrupt. If the queue is available for mutually exclusive access, it is checked to 15 determine if there are events in it. If there is at least one event in the queue, one event is removed in a Critical section, and the queue is released to the system. If mutually exclusive access is not immediately available, or there are no events in the queue, the 20 dispatcher yields. Otherwise, the removed event is next presented to the Notification Controller where any Notifier Objects in its list, sensitive to the event, are triggered so as to disperse the event throughout the systemic on villameans contraves arrange a secural secondary sallung that invoke a

25 Event Queuing rears of absorve tear say

Queuing of events occurs sporadically, when an event is generated by a VCO-encapsulated software or hardware component. Frequently occurring during hardware interrupt cycles, queuing is carefully optimized to require very few cycles and little resource allocations. A short blocking operation may be necessary during dispatching to gain mutually exclusive access to it. The event is added and the queue released back to the system.

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If the atterpt to add an event to the queue fails, a fatal error (VCO Exception) pocurs and the VCO is permanently disabled. Tablique unations

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THE MILL WOLL Exception Handling Matters Mechanism

The VCO exception handling mechanism is not shown in FIG. 4. Exceptions in the VCO are conditions that are deemed fatal errors from which the system cannot recover without risking a system crash. The underlying design principle to VCO exception handling is that system 10 crashes result most often from continued use of a destabilized system component, from attempts to recover from destabilized conditions and from the failure of a status. In accordance with an overriding concern for 15 system reliability, VCO exceptions generate reports, and a subsequent disabling of the VCO Neither the VCO nor its concomitant support software, is accessed until the VCO is destructed. Once disabled, all calls to the SCI return immediately with a result code indicating that the 20 VCO has been disabled. For continuous use applications, the risk of system crash is rendered unlikely, and the system with one destabilized sub-system likely remains of Sufficient health to invoke a resident backup system.

Fatal errors occurring internally to the VCO. 25 generate an internal assertion failure that invoke a recovery routine that proceeds to execute a reverse stack trace. The trace searches for markers pushed onto the VCO stack during calls to a special member function called upon entry into the VCO. Every VCO entry point is guarded 30 by a call to a function that returns a result code. indicating whether or not the VCO is enabled or disabled. Upon locating the address of the instruction pointer (on the stack) at the execution point of this status call, a result code indicating that the VCO is disabled is pushed

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onto the stack, along with the address of the entry rervingl on point. A return instruction is executed to bring the calling thread back to its original point of execution just prior to calling the VCO status member (which will 5 indicate that the VCO is unavailable when the status call is re-executed), and to the impression that it has been turned back at the door due to a preexisting disabled state. The calling thread is without cognizance of the fatal error it unwittingly generated by its 10 venture inside the VCO, and finds the VCO is simply unavailable for continued use. This technique of shutting down the damaged VCO, accompanied by transparent error handling (from the perspective of invoking applications), maintains system integrity until the host system can risk 15 a recovery operation.

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Exception Handler Modalities

A variety of VCO exception handling modes can be invoked incrementally by specifying any combination of the following modality flags. These modalities are additive, and affect the way in which reporting of the exception is handled.

Debug modality flag, if set, specifies that detailed debugging information (in a message box) will be displayed at the time of exception. This mode is intended for use during system development where proprietary information will be displayed.

User modality flag, if set, specifies that general "user" information (in a message box) will be displayed at the time of exception. This mode is intended for use in the field after the product is released.

Term modality flag, if set, specifies that exception information will be sent to the VCO

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terminal output port for display on terminal output devices.

Notify modality flag, if set, specifies that the exception will generate an exception event and trigger Notifier Objects prior to disabling of VCO.

. (kot in med a. Abort modality flag, if set, specifies that the exception will abort all VCO operations, after reporting the exception, and disable the VCO.

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Event and Object Labeling Mechanism This mechanism provides function calls that convert indexes to strings. It relies on a collection of the series and string varies and string of string tables, whose string element positions reflect the 15 value of the indexes. The string tables can be loaded from resource files that contain text in the appropriate language. San semmen graffinen notbigerke CDV fo ydesises s

in paed in**creaentelly by specifyling** ary no Labeling of Events, Enumerated Values and Result Codes Retrieving a text label to describe a VCO event is 20 accomplished by presenting a VCO event identifier, result code, or standard enumerated constant to the appropriate member function. A pointer to a static copy of a null terminated label is returned, and is typically used to formulate messages for terminal output, and by C.X 25 applications to display states, modes, and operations taking place in the VCO.

Labeling Objects

Retrieving a text label for a VCO software object is accomplished by presenting a pointer to the object to 30 a member function. A pointer to a static copy of a null terminated label is returned, and is typically used to formulate messages for debugger and trace window output.

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Event and Object String Label Database

A memory resident database in the VCO contains tables of string records for all of the VCO enumerated constants, and the VCO command set. Reference databases containing object pointers and labels are created at VCO construction time. សុខ គឺព្រះ គេជា ខុសខ្លាស់ (ដែលប្រាស់ ស្រាស់ សីពីដីពេល ស្រាស់ ពេលបាន ដែលសុខ ជាធារា គេជា និទ្ធស ថាបាននេះ ការ

10 Media Control Object Device Control Mechanism

Designed to facilitate the manipulation of signals as distinct objects, this device control method is intended for full implementation as a graphical desktop media control system, supporting a drag and drop signal 15 switching model. Each object, representing a specific signal type, has a standardized set of properties, and well-defined modes of interaction. The physical structure of the Media Control Object Device Control Mechanism represents each signal as a software class object, and all signals currently available in the system as a linked list of such objects in the VCO DEVICEPARAM structure. Media Control Objects are created and deleted as signals become available, or unavailable, depending on connection state and device availability.

VCO signals are identified according to their type and direction. The possible types of signals include audio, video, image, and binary data. The possible directions include input from the remote station, output to the remote station, input from a local transducer, and 30 output to a local transducer. Member data in each Media Control Object describe the current states and modes related to the signal. Member data in each Media Control Object describe the current states and modes related to

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the signal, and member functions invoke physical operations in their host devices.

It is possible to determine if a given Media Control Object is capable of specific operation by 5 setting the query flag on the SCI member function to control them. In this manner, the client can test an operation without invoking it. A special function to return the capabilities of a setting is also available, and a list of settings constants (or parameters for the 10 setting) is returned. For H.221 capabilities, related to the multimedia interconnection protocol, the VCO parameter block maintains an updated listing. There is a very close logical mapping between H.221 capabilities and Media Control Object capabilities -- no H.221 video mode

means that there is no motion-video available -- and its

is likely that the very existence of a Media Control

Object indicator of the control Object indicates that most of the operations for that Object indicates that he beautiful back a set that the life of the life of the signal type are supported to some degree. It is often signal type are supported to some degree. sufficient to let a client attempt to set the mode, and 20 report that the system is incapable, than to constantly monitor and maintain a local capability listing.

Device/Protocol Controllers

The divers Device/Protocol Controllers, discussed in the overview section, each have emulation components, shown in FIG. 4, that reside in either/both the VL and the PDI. The objective in any VCO emulation mode is to enable to the VDI to operate fully, without the ability of it, or any client applications, to differentiate between operation with actual device support, or emulation of it. There is an emulation mode flag in the system information that determines the operating mode. Any operations supported in the VL or the PDI must check this flag during every invocation of service, and either access a physical device, or provide a set of results

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emulation of operations exists in the VDI -- it makes no direct references to low-level device services except through the PDI.

5 Remote Station Attachment Machanism

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Attachment of a remote station to the local station enables the local station to monitor its event stream and control its operations. The basic mechanism of attachment has been discussed in general, however the specifics of this interaction deserve more attention.

Essentially, an attachment mechanism sufficient to monitor a remote station requires a cross-linking of the output of one station is event encoder to the other station sevent decoder. To establish control of a remote station, there musty in addition, be a cross-linking of the output of one station's command encoder to the other station's command decoder. There are a number of operational considerations that become the subject of negotiation between the stations, once attachment is

oMonitor: Context: seadane ebom interco now

Monitoring context refers to the station that is the source of the current event stream emanating from the local VCO's dispatcher. Any combination of the monitoring modes can be in effect once attached. A VCO that is not attached to a remote station can only monitor local events. The remote station must grant permission to be monitored by the local station by indicating so in its monitor parameters. VCO monitoring modes are described as follows:

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- Remote monitoring mode affects the target VCO to dispatch and process events emanating from the remote station to which it is currently attached.
 - Array monitoring mode affects the target VCO
 to dispatch, and process events from a
 specified array of remote stations.

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Control Context. The Landson was for the book was a

Control context refer to the station that is a controlled by calls to local VCO SCI member functions. The remote station must grant permission to be controlled by the local station by indicating so in its control parameters. VCO control modes, from the perspective of the local station, and when set inothe physical local station VCO are described as follows:

- Master control mode enables the local station to which it is granted currently attached to the land the station to the control of the control
- to be controlled by a remote station it is currently attached.
- Peer control mode enables both the local and remote stations (attached to each other) to control themselves, but not each other. This is the standard operating mode for most so interconnections between stations.

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FIG. 5 depicts a VCO client application arrows highlight the flow of function calls through its various components. The diagram shows a full implementation of a VCO client application that best describes the VCO Client application concept. All of the components shown are not necessary to establish a minimally-functional multimedia

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connectivity session with a remote station, but are needed to make full use of the entire VCO feature complement. The client application specification, unlike that for the VCO itself, is represented in a generalized fashion, and strict compliance is not necessary to achieve the benefits touted by the VMCS; a broad range of effective application designs may be derived from this prototypical VCO Client application model illustrated.

Summary of Client Software Architecture

A client application selects a class library supporting an implementation of class VCO. Constructing class VCO, it makes calls to the Software Control Interface for the newly invoked VCO to establish a connectivity session with a remote host. The client has a number of components that it uses to manage this session:

The Device-independent Connectivity Application Shell provides the user-interface and basic task management for the client application. This component displays session status information, and initiates the wisy (see word) milestones of its inception and termination. This component is the logical control mechanism for all VCO operations. If it is to esuper construct a VCO directly, it must be created with the same object-oriented language as the vco itself. While it is preferred that the client is a GUI application to best present the VCO control system to the user, it can be as simple as a daemon running in background, that processes string commands from a data stream directed to it.

A number of Notification Receiver Objects receive notifications from the VCO that various VCO events have occurred. Client

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applications typically create a Notifier Object to receive text streams from the VCO terminal output port. At least one other Notifier Object should be created to receive indication of the three major classes of new local station modes (new H.221 transmit, modes), new remote station modes (new H.221 receive modes), and new call state changes (new call and line states) -- one Notifier Object can be configured to respond to all three of these event types.

Event and Text Processing Components are specifically designed to analyze and for to respond to text and event information emanating from the VCO. Text processing of the terminal output stream can take the form

of graphical display in a trace window that has the facility to enable its viewer to move forward and backward through the output messages, in order to view the progress of Trace information could also be the session. saved to a log file to permit later analysis

of session activity. Finally, trace output can be analyzed by a debugger, or H.320 protocol analyzer. New remote station modes

are usually routed to the Station Profile Controller for processing and interpretation.

The Station Profile Controller examines new modes set by the remote station, and using a Station Profiler, compares them to a database, to determine the remote station's 🔀

manufacturer or type. Once identified, the remote station's profile is elicited from that same database, and its non-standard

feature set made available to the

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application. Non-standard features include advanced camera control operations, proprietary VCO features, data exchange protocols, and application sharing features.

Non-standard capabilities are also examined to determine the level of functionality, of which the remote station is capable. The Non-standard H.221 Mode Mapper provides a virtualized representation of the remotestation's available special features, and presents them to the application shell in a manner conductive to their mapping to local station physical controls.

Application Notification que bebeendridiem , comempotate

from the VCO to the client. Ongoing notification of the application, by the VCO, in the form of multiple concurrent event streams delivered to application class objects, changes the context of the VCO from a sub-system invoked by the client, that returns values in response to commands, to an adjunct connectivity operating system; an operating system running in parallel with the primary operating system, actively communicating with its client application processes through an interrupt-like

25 mechanism, and similarly operating completely independently to specifically manage system multimedia connectivity resources.

Notifications from the VCO, to its client applications, take place using a mechanism designed to provide structured entry points that function much like interrupt service routines. From the perspective of the client, the design eliminates the risk of interfering with the delicate timing of the underlying multimedia connectivity sub-system, and does not confound normal

time slice allocations by the operating system scheduler. At the level of the application, notifications are discreet entities that are independent of any operating system or GUI event processing/queuing schemes, and 5 resultantly more time-responsive; so much more responsive than adding events added to the application event queue, that notifications can preempt drawing operations by the GUI, but without inordinately starwing the GUI of its time slices. The notification is usually implemented to 10 run on a separate thread, concurrent with those drawing on the display, and thus connectivity events can be processed concurrent with drawing, rather than subsequent to a GUI operation in progress. The VCO Client notification system permits the design of high-15 performance, multithreaded applications that can process and respond to connectivity events with responsiveness that (in the context of a user interface) approximates real-time. Notification to VCO client applications proceeds with rapidity such as is required for 20 controlling both local peripheral devices, and the peripheral control features of remote stations, while concurrently maintaining a responsive graphical desktop

Notification Receiver Objects and aecasourd to issort des

display.

In the application, any class object can be configured to receive calls from a Notifier Object when any one of a subset of events occurs. A member function in the object is declared for this purpose by the creation of a thunk. As previously described, thunks are created to redirect calls from the Notifier Object in the VCO, from a public global non-member function in the application (called by the Notifier Object), to the particular class object instance and member function intended exclusively for the purpose of notification. The

្រុស ខេត្តប្រជាជិញជា និង ស្រាប់ ប្រជាជា និង និង ប្រជាជាធិប្បធានប្រជាជាធិប្បធានប្រជាជាធិប្បធានប្រជាជាធិប្បធានប្

permitting system, undernative reasonities guitament

receipt of notifications by the application often results in the application sissuance of calls back to the VCO to correct, compensate, or respond to the condition. Many event handlers in the application function as feedback loops; upon notification, they immediately invoke VCO functions in response. Logical assistance by the client application is unnecessary once appropriate response routines have been setup - the VCO manages the multimedia connectivity system automatically.

100 Station Profiling Silv all vote halle aways allowed noise as

abox) The primary objective of the client station profiling mechanisms is to first identify the remote --station as one represented in a local database of potential remote station types. Once a descriptor for the 15 remote station is found in the database, the client can now determine any non-standard device modes (that invoke special features supported by that remote station. Further, a list of corresponding non-standard capabilities is also stored in the descriptor, such that 20 the local station can make a positive predetermination as to whether the special feature associated with the remote station type; is actually available for use. Nonstandard modes supported by the remote station can then be mapped to leaf controls so that the VCO client becomes capable 25 of avdegree of station control typically only possible by interconnection between two stations from the same manufacturer - VCG stations can fully understand the particular proprietary non-standard features they support. The VCO client is capable of an extraordinary 30 degree of compatibility with an unlimited range of remote istations process out in a land western it med ...

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Station Profile Controller va unatabastictum of the

This software controller contains three components that provide the functions necessary to implement a contransparent mapping between local station controls, and 5 remote station non-standard features. Local station features, beyond those represented in the VCO control mechanism have specific sequences of device modes that must be set to activate them. Non-standard modes on the remote station work the same way, except the mode : with 10 sequences are different. The three components of the Station Profile Controller enable the client to associate: any local or remote station non-standard feature (mode sequence) with a control on the local station. In short, the Station Profile Controller offers a symbolic and evice-15 independent representation of local and remote station non-standard features, and beyond that, the ability to a se associate one local with one remote An example of this association is in order: consider a surveillance system

that maintains two specialized features: The same of the same

1) It allows an operator to remotely select the current camera from a variety of available: input cameras.

2) It displays an "X" cursor on the operator station video image, pinpointing the exact center of focus for its currently selected camera, and the remote station will move its selected camera to correspond to any mouse-invoked change in the cursor location on the operation display, therein allowing the remote operator to survey the area with simple mouse movements. The remote station will continuously reflect the camera's actual physical position by rendering a cursor on the operator station visual display. There

is no H.320 representation of these

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or made previsor into prince; operations, beyond support for sharing a cursor position; the selection of a remote camera is a simple operation, but the second feature is one complex, proprietary, and in need of specialized library support features -- the cursor movement mechanism requires a complex feedback mechanism to move and display the "X" cursor as intended by the remote station's programming. When the operator station connects to this monitor station, the operator station determines that the remote station is of this particular monitoring station type, and locates a descriptor in its database that describes it. The modes to select the camera are represented symbolically to the VCO client, itodaya adsiberranti de or teliar notice and and mapped to local station controls. The sequence of mode-setting operations necessary to the selection of the remote station camera is invoked by offering the symbolic representation of the operation to the 3.70 40 Station Profile Controller. For the more complex cursor-aiming feature, incoming cursor position modes are mapped to a of the state of th virtualized definition of cursor movement, and passed to functions in a library of ngabadaa Hiot supporting routines, developed specifically ្តាក់រដ្ឋានិធិនិ to display it as required. Local station TELL TO mouse movements over the video display region, on the operator station's bitmapped display, are mapped to cursor movements sent to the remote station via a similar mechanism used for camera selection. It is the VCO's min (borings) notification mechanism that enables the 1.1 pl 04 concurrent processing of device modes,

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sending and receiving them to/from the remote station, at the system level of the GUI application, without interference from other application activities. া হয় ব্যক্তিক করি 📆

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ser my tavod zosztku skry This component is responsible for identifying the remote station. Upon connection, it sets sequences of modes, and conducts whatever query is necessary to determine its manufacturer. To this end, it compares 10 modes sent back from the remote station to stored sequences in the database.

wonithring station type, and locates a regram abon brabast-non asseriptor in its detabase that describes

This component maps non-standard local modes, to see says a substant and see of association and association and se sets states of the set of associate set specific features, by assigning mode sequences (and the set of the sequences (and the set of the sequences) function calls) to an intermediate symbolic and the sequences of the sequence maps representation, which is then used in a feature mapping purpose against an apping the particle of the property table. The same mapping is performed for non-standard remote station modes, however the mode sequences are preprogrammed, stored in a database descriptor, and preprogrammed, 200 and its and anomal anomal and anomal anomal and anomal and anomal anomal and anomal a

Non-standard Capabilities Mapper

This component manages the capabilities associated with the non-standard modes handled by the non-standard mode mapper. It provides a mechanism to determine if non-25 standard modes are available on the remote station, as well as mechanism to inform the remote station that the local station is capable of handling its non-standard ರಾಣಕ್ಕೆ ಹಸ್ಯಗಳ ಸರ್ವಾಗಿ ಸರ್ವಾಗ ನೀಟಿ ಮುಂದು ಮಾಡ್ತಿಕೆ ಸಂಹರ್ಷ (ಗ್ರಾಮಕ್ಕಡೆಗಳು

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(ಚಿತ್ರಕ್ಕೆ ಅಗೆದೇ ಆಗ ತಗೆಚೆ ಗು CLIENT VCO ACCESS METHODS

Derived from this design are several methods for VCO Clients to access the services of the VCO, so as to

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make use of the Weomas an independent multimedia connectivity operating system that supports client assessions.

Notes On Drawing: They breaked a real and?

Clients to access service of a particular VCO. The left of the drawing, labeled "REMOTE SYSTEM", and the right, labeled "LOCAL SYSTEM", should not be confused with the "REMOTE STATION" or "LOCAL STATION", access from another system may be from any computer supporting a text command stream to the host system, even from a dumb terminal. If the controlling system is a station (connected across the network), then it must establish a text data stream (in-band or out-band) to transceive VCO commands between the two systems. Note that the VCO depicted in the "REMOTE SYSTEM" is controlling the local system as its master, by employing some command dispatching mechanism to connect to the local station, but not necessarily over the network.

20 Summary of Access Mathodelogies

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The Services of VCOs are utilized by client applications that construct them, and subsequently make calls to their member functions. Once constructed, the VCO lies resident in the host system as an adjunct

- 25s multimedia connectivity operating system that can respond to requests for service; when accessed in one or more of the following ways: as asset to be a secured to the sollowing ways:
- of Client applications running in the host system are able to construct one, or more,

 30s VCOs through the usual Direct Member Access method; that is, they call member functions in the VCO's Software Control Interface, to drive a multimedia connectivity session.

To provide text command access from a remote system, without sending commands across a network connection, a VCO/TTY Access Daemon can construct a VCO in a host system, and then open a command text stream:through a 5 system communications portal Any remote system connecting to that port can send commands, and examine the effects of their sissuance. A VCO terminal session is established upon 10 control connection to a remote system communications waster to the portathat is being monitored by a VCO of the CI directly, commonitored by an Access Daemon. and to a become From the perspective of the premote system, mentic count the method of creating a terminal session to be 15 a second accommon trol a, VCO distreferred to as Remote (1) San Command Access Simply put, WCO commands are the as read issued directly from a remote station of dumb value poterminal, to a waiting VCO, or dagmontacting a dimermación its behalfoidada labol add od doennos ad A seamlessly integrated remote VCO control 20 solution, referred to as Remote Member Access, is an access method that creates; in it a VCO implementation a Media Control Object was that is expressly designed to establish acbihar directional text data stream through ras [1] so particular system port at The TY60 command/event streams are directed through its tooprovide as: level_of_control_that_allows_a_VGO_elient; invoking VCO members on its own local system, to drive a remote VCO transparently. This 30 method utilizes the identical components and mechanisms as for remote VCO control across a connection, except that the command/event stream is directed togan out-band on fator objectable and the colour and a solution

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communications port; and not the principle in network connection:

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This section describes the full implementation

of a VMCS that supports concurrent live audio, live

video, imaging, and binary data transfer services. The

VCO portion of the system must be created to support the

specific configuration of devices installed. Compliant

client applications will run over any vco that they

- construct. Any number of VCOs can be created to encapsulate divers combinations of devices installed in the system. An instance of a VCO (that encapsulates a device set) is one of many possible presentations of that same device set to an application; a different vco
- implementation may invoke the same devices in a different way, or using different drivers (for example) to present an entirely different performance profile. Depending on the capabilities of the sub-systems installed, multiple VCOs can be instantiated concurrently to provide multiple
- 20 multimedia connectivity sessions at the same time. There is no limit to the application of the VMCS paradigm, as long as the specified VCO service is provided, through some means, to the client application or marked as absent in the VCO's capabilities listing.

25 VMCS HOST SYSTEM REQUIREMENTS

Implementation of a VMCS is best accomplished in a microcomputer host system equipped with peripheral devices to process audio and video signals, and a connection device to interface with the network. A VMCS can be constructed to run over almost any combination of the components discussed in the section entitled Host System Equipment Requirements below, depending on the level of implementation desired; support for concurrent

audio, video, image, and data services is hereupon described for the disclosure of full CVMCS implementation, but any partial implementation is possible without affecting the basic VMCS design. The VMCS is ideal for 5 limited usage i.e. only for audio connectivity. Furthermore, the bewildering array of devices for audio, video, data, imaging, and wideoconferencing, that are now available, often combine the functionality of two or more devices, in which case the perceived differentiation of 10 between them exists only in the software abstraction is layers that comprise a VCO For example, an audio and 🥏 🗯 video device may be combined on one board but willows appear as (map to) a number of discreet functional Media Control Object entities whose hardware support mechanism 15 is indeterminate, when considered at the level of the VCO Client applications oces and emovat year confunctional at

Host System Equipment Requirements for the host computer, adapter cards, peripherals, and system software described. Each item is intended to represent an example component; many permutations of features and hardware configurations are acceptable for actual deployment.

• IBM-compatible Personal Computer con

A Personal Computer is the preferred host system. It should have a Pentium processor running at 120Mhz or faster, contain at least sixteen (16) megabytes of random access memory, and a minimum of 500 megabytes of backing store capacity.

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• 32-Bit Multitasking Operating System

The VMCs host operating system should provide

protected memory address space for each

process, support multiple threads, and have a

preemptive scheduler.

• Graphical User Interface

A VMCs host operating system user interface should be event-driven, and provide a windowed graphical "object-desktop"

environment where each visual component can be manipulated by

193 000 0 drop/drag/cut/paste/properties operations.

Audiovisual encoding and decoding hardware

may be integrated with other devices onto one
or more adapter boards that plug into
expansion slots in the computer. The CODEC
devices for this implementation must encode
audio and video inputs from a microphone and
camera, respectively, to a multiplexed
digital signal compliant with the H.221 frame
structures. Decoding must proceed from this
H.221 compatible signal to an analog audio
output, and a VGA video signal for output to
(for example) a video display terminal.

Terral Video Display Adapter with Overlay Controller

A high-resolution video graphics adapter must be installed so as to work in conjunction with a video overlay device. This hardware configuration will support the station's principle visual graphics information output pathway by enabling the simultaneous display of bitmapped graphical and motion-video. This sub-system must permit motion-video display

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in a windowed portion of the main screen, a region programmatically selected for that purpose. The overlay controller allows the display of motion-video over a region of the bitmapped display device by enabling the real-time overlay of NTSC video frames onto the identified region of the main display bitmap.

Audio and Visual Peripheral Transducers

These peripherals include input devices such as an NTSC camera to input motion-video, a microphone to input audio, and a 600 DPI color scanner to input high-resolution still images. Output devices include a 17" CRT display (1280 x 1024 resolution that can display 65,535 colors) for bitmapped and motion-video output, a loudspeaker for audio output, and a color laser printer for hardcopy photograph and document output.

hardcopy photograph and document output.

Audiovisual devices may plug into analog signal ports on adapter boards designed specifically for the purpose of PC bus interface, or into standard digital computer ports (according to their own unique interfacing requirements).

Media Access Control Device Drivers.

Device drivers must be provided for the audio and video adapter boards (including the overlay controller) enabling the initialization, configuration, shutdown, and querying of each. System device drivers must be available to input scanner images, output printer images, and control system data ports, among other standard system services.

Network Interface Unit (NIU)

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A network interface unit must provide the physical link to the network. It needs to support a minimum transfer rate of 128 kbit/s through a plesiochronous network (see 5 U. Black, ATM, Foundation for Broadband Networks, Englewood Cliffs, New Jersey, Prentice Hall PTR, pp. 36-37, 1995) such as that provided by the Integrated Services Digital Network (ISDN). In the case of a host PC, the physical network connection e service de la rentación de la responsación de la cita as adapter card plugged into one of the synt The Marriagne computer seexpansion slots. Asfully-digital ISDN modem Cevice is usable for this purpose. colfibrace, and implementation 2000 Property of 1000 Property of the 15. The network interface must provide programmable software control of the physical network service, and in the case of the recommended ISDN configuration, ISDN network protocol software must provide accessibility 20 to one or more b-channels (for encoded audio/video data) and to a d-channel for the 200 00 4 198 out-band signaling required for H.320 protocol implementation. Data packets from the system must be directly accessible for 25 Tisa acount synchronous transfer to and from the alcount decoder/encoder devices (audio and video TE TOI COLLEGE CODECS): OF LOGINGS COLLEGENCE 200 to Jan ele ISDN Basic Rate Interface (BRI) For the preferred ISDN network interface, the Samuels William abfliffy to establish a connection supporting 128 kbit/sec is generally accepted as the absolute minimum bandwidth needed to support a primitive motion-video image (with a concurrent audio signal) across the ISDN. A 35

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typical BRI installation is utilized as a 2b+1d channel configuration. For most purposes, a triple-BRI, or composite line configuration (384 kbit/sec) is preferable, create as it is capable of producing an image closer , and we in quality to that is generally considered acceptable in other video applications.

System Development Requirements of the state of the state

Developing a VMCS from preexisting hardware 10 components is a combined system and application software development effort Initial development of a VCO to control a set of devices is a significant undertaking that involves careful interface to device control software, and implementation of many of the specific

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- 15 protocols residing under the H.320 rubric. While implementation of the prototypical YCO kernel is nontrivial, diligence is repaid many times over in that , nearly all of the kernel source code is propagated, in rote fashion, to create a new VCO that can readily
- 20 support a new set of devices. The client application binaries are directly re-releasable -- client programs are fully device-independent and run over, any VCO built to specification. Requirements to implement a VCO are outlined as follows: A Jaca mesaya edd

• ... VMCS, Disclosure provides the necessary description of a Virtualized Multimedia Connection System to derive a design for an actual implementation. A complete set of the ITU-T recommendations referenced in ITU-T 30 Recommendation Ha320, are a necessary adjunct to the implementation and testing of fully compliant protocol implementations (see REFERENCES).

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C++ Software Development System or a functionally equivalent object-oriented development system must be used to create both the VCO (server) and client portions of the VMCS. Full implementation of the referenced AT&T C++ language must be supported.

Developer Toolkits provided by hardware and software OEM's, whose components are to be incorporated as VCO components, is essential to porting the device-independent VCO kernel to a new multimedia connectivity sub-system.

Software tools to create the graphical user interface modules (such as exception handler message boxes and configuration displays) must also be available.

Software Development Considerations

To restate the purpose of VMCS server components: it is the primary directive of every VCO to bind, 20 dynamically at run-time, a connectivity source to a set of transducers; and do so in such a way that the service provided to client applications serves as a mechanism to share spectral information between interconnected stations. In the use of it, no consideration is given to Tollid ve Codreitsmy has estable between this eligible of the any intermediate data transmission methods employed. is the responsibility of the VCO implementer, to ensure that sound and light directed to and from the remote station, are somehow seamlessly, automatically, and transparently transited over the void that may exist 30 between data streams associated with the source of connectivity, and those associated with the local transducers. Most systems utilize an integrated audio/video hardware design to provide a direct analog signal link between these parts -- consider those

manufacturers mentioned in the Background section -- but this model is crippling to the station in its other purposes for reasons aforesaid.

The operating system type specified for this system is characterized by the ability to spawn threads that run concurrently at specified priorities. be utilized to support transparent (to applications running in the foreground) real-time data streaming facilities. Data streams to/from connectivity sources can be attached to/from transducers, so as to bridge any gap between discreet devices installed separately in the system; sharing data between separately installed devices requires read/write operations executed by the orēate microprocessor (there is no direct analog signal Thrid inquiryons as doug) as subom seas read, connection between devices on different adapters). With ີ້ຄກຝັ່າວກຸ ಜಾ**ಜಭಂ**d ಕಾಧಿಕವಡ the specified operating system type, a station can take advantage of the multiprocessor personal computers that would support the transfer of data at very high speeds (between devices in the system), even at rates sufficient to the system operation, while processing audio and

video in real-time.

**The consideration of the control of the con the VCO implementation must create the operational context in the system, dynamically when invoked, to move data between system components. It must do so in a way that is fully protected, secure, and unaffected by other system activities. The creation of the sub-system's operational context must be transparent to the client application, as must its destruction at session's end.

30 VCO SOFTWARE IMPLEMENTATION A VCO is mostly comprised of software objects whose member function implementations are overridden by more derived versions of themselves that provide structured access to the services of installed adapter

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devices. As the VCO architecture is a direct application of software object technology, to elucidate the details of its embodiment entails discussion of its components in terms of a class derivation hierarchy. Next follows examination of the VCO's class structure.

VCO Class Derivation and Section Section 100 100

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One VCO implementation encapsulates one specific sub-system configuration that exhibits a particular set of properties (capabilities) that defines its unique service profile — unique in the set of standardized vco operations it can support, but no different from any other VCO in the way it presents them to client applications. Correspondingly, each VCO is no different from any other in the way it is implemented. In fact,

- there are a number of implementation principles to consider prior to VCO acidesign specification, thus speaking generally towards application of the concept...
- and the less derived classes in the VCO are less level formation and the same device independent wherefore all VCOs contain to the same device independent kernel (that is 25 formation and the comprised of class VDI and all those from the to the same device is derived).
- ranging from the VDI that responds to
 coccurrences of events in OS-scheduled time
 slices, to the PDI that can queue events
 during interrupt service routines, invoked in
 - real-time by device requests for interrupt.

 More derived implementations (more deviceindependent default implementations) of VCO

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virtual members; substituted with a more suitable implementation overriding them with mone device-specific (residing in a more derived class); that is, a default function is provided by the VDI, which the programmer can override in his particular implementation of the same feature. 83 27 1 1.3. 1 In most cases, more that 90% of the VCO source code is reused in the next yco implementation without modification, due to the imposition of rigorous functional verse of constraints (by the VCO architecture) son its or class structure and the year at our weath A pure virtual member interface in the lag. _device-independent_VDJ_d-to_more_derived apagioning control membersoin the device are at dependent PDI, impose strict isolation cof: logical from physical operations. This isolation of logical operations from physical device operations, is realized by exploiting object-oriented software language constructs: integral to the language itself; structural integrity and layering of operations in the VCO is enforced at the most fundamental level of source code expression. The device control members used by the VDI (to lend physical device control to the implementation of its algorithms) are accessible directly in the same class, but the underlying device control mechanism is (for all intents and purposes), in one more derived and not directly addressable. Resultantly, any changes to the way these more derived device control members are implemented, are beyond its discerning.

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Design-level isofation of logical and physical device control mechanisms in the VCO architecture, are incorporated so as to intentionally expose a well-defined, readily exploitable "fissure" in its layering model, whereby the core technology is rendered amenable to specific extensions of concept.

The implementations of certain system designs are significantly reduced in expense and difficulty as a direct result of the well-defined logical-to-physical mounting mechanism. Some applications of concept advanced by its accessible mounting mechanism include:

- 15 Rapid prototyping and redeployment for Lawrence to the configurations
 - 9770 4 3744 9700 Distributed VCO development by VDI and
 - Microcoded or embedded PDI

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Distributed media control systems

The class derivation diagram depicted in FIG. 5 shows the classes that directly comprise the VCO, as well 25 as adjunct classes (Notifier and MCO) that are used to implement its feature set. Every component shown is used in every VCO implementation exactly as shown. Class VDI, being the Virtual Device Interface used by clients to access the VCO's encapsulated sub-system, is the only class, besides the public constructor and destructor in class VCO, that contains public member functions. The symbols used to describe the various relationships between classes are mostly proprietary to this disclosure, as no widely-used convention to graphically

express object-technology concepts has been adopted by a major standards organization. Symbolic conventions used here are shown in FIG, 1.

... - sogka Wilsonaidr - J. Sprage Programme and Summary of VCO Class Derivation

Each VCO is a composite derivation of the six classes: Terminal, Exception, Event, VDI, VL, PDI, and VCO. In the order of least to most derived, the derivation sequence for the VCO itself, proceeds as follows: ాష్ట్రాలా సర్వహస్త్ క ఆగ్రామక్షిలాప్రామెక్

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Class Terminal enables the VCO to send text messages to a set of character output devices, or receive text messages, that are subsequently interpreted as commands. Since the VCO terminal can be programmed to use the VCO notification mechanism as a virtual output device, the class contains a purevirtual member used to direct text output to

__a Notifier Object configured for such purposes. This member is overridden by a

supporting member function in the more 😓 derived class Event, and this override must

be present for class terminal to compile.

Class Exception is derived from class Terminal, and is defined to contain member functions and data related to reporting fatal errors by responding in some pre-configured way. In the most primitive sense, the only

service that class Exception must be able to access is some method to relay the fact that

the exception occurred, and by inheriting. members of class terminal, it can. Class Exception also has a virtual function used to shutdown the VCO when an exception occurs. An

_override_in_the_VDI provides an __ regulation

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inplementation that shuts down the VCO, as
expectêdedûrîngefatal errors.
    class Event is derived from class Exception,
 and is defined to confain the VCO event
         manager, which in turn manages the
      notification mechanism. It maintains a linked
   object list of Notifier Objects which are
      themselves each individually derived from the
        NOTIFIER data structure. Every Notifier
10 0 Object is a protected class that is created
     by class Event, and is a friend to it. Class
 Event, but no other, can create, delete, or
      he sacress class Notifier members directly except
   of the symembers of class Event, thus the Notifier
15 creatures of it. The
   OF add descevent handler is the VCO's "proxy" to the
to medical loroscalinked liste of Notlifier Objects. Class VDI is
     main de a protected derivation of class Event. It is
     defined to contain a large set of members
    that comprise the VCO Software Control
20
     interface, and a number of device-independent
La little same of protocol support procedures. Inheriting the
and sauthered services of classes Terminal, Exception, and
  Told Y and a Rvent, wit is capable of presenting the entire
25c. bada scaaa VMCS connectivity services through the member
  .animat rsispifunctions of a single binary software object;
      and that is, one finstantiated upon construction
 vicistic ers coofeasclass derived from it. Co
The lass VDI, and
30 Take of Second provides a location for an implementation-
Harris of a dependent set of routines to map physical
   device control operations and responses
       was at the logical representation
     manipulated by members in the VDI. Most of
     its members are private to it, and narrowly
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RESISTING PART OF TOURSESTING SCOPE FENTERS POINTS to translation and mapping services bare made public to more derived classes that wish to utilize them. Class PDI is derived from VL, and contains within it, private definitions and implementations of member functions that override the pure virtual device control members used in the VDI to invoke the services of physical devices in the 10 encapsulated multimedia connectivity subsure The implementation of the pure virtual overrides utilize members in the VL reform (1170-11) a request late and map the structure of no blidole and arguments and input/output data syntax to that expected by the VDI implementations. The with of "Vica PDI contains mechanisms to access the VCO Media Control Object Device Control Mechanism (Media Control Objects) This mechanism relies upon the maintenance of a linked object list of instances of class MCO .20 maintained much like the linked list of. Notifier Objects in class Event. Class MCO is derived from an MCOPARAM data structure that serves as a general purpose repository for device control information as associated to a _____particular signal from a particular device. As with the administration of Notifier Objects, instances of class MCO are directly accessible only by the PDI; only the PDI may directly examine, modify, and invoke their members. The design of the VMCS is to promote its utilization in a variety of operating environments that include distributed systems, remote access across a network connection, and text command (teletype) 40

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interface via dumb terminal. Members of class MCO are accessible to underlying Media Access Control software, and MCO implementations make calls to the same to invoke device services.

Class VCD is derived from class PDI, and functions as the capstone for the VCO class structure. The only members it inherits from its parent classes are the public members that comprise the SCI in the VDI. Its constructor and destructor call those of its parent classes, thus it invokes those of the the documer due VDI to create and destroy the VCO session. Class VCO contains all additional 15 - Transport implementation-specific entry points (object members) that are presented to client applications, including extensions to the VMCS that are not directly related to controlling the connectivity session. All

client applications proceed with the expectation that the invocation of VCO services will always be accomplished using a pointer or reference to class "VCO". Translate BUT call to test cortist

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Class Components

Next follows detailed descriptions of the 25 operations that must be implemented by each class comprising the VCO. ស្សា ខែង ខែសុខសុខ សុខភេឌ្ឍី១ ៨១៩១ មាននៅស ពេក្សិន ជនសុទ្ធ ខែ

Class Terminal

Provides full implementation of the VCO terminal 30 services by maintaining a list of output devices for the output terminal, and writing all text message sent to the terminal output port to every device on this list. Text messages sent to the terminal input port are assumed to

20

6:

be VCO text commands. They are parsed into tokens, decoded, and executed as SCI commands. The sub-components residing in this class are listed below, with an accounting of the specific operations for which they must 5 provide support. .astir.za:

> Terminal Stream I/O Device Controller Operations supported by this sub-component must include the following:

- Add output device to list ೬೯೬೬ ರಾಣ ಕತ್ತಿತ್ವ
 - Remove output device from list
 - Write text message to output device
- Text Command Decoder Operations supported by this sub-component must include the following: is midibbs
- Parse text command message to command prince transcriber and command entry policie jobinia token list nted to dillert
 - Verify command syntax
 - Execute command token list as SCI command eda politorado:

Text Command Encoder Operations supported by this sub-component must include the following:

- Verify command syntax
- Translate SCI call to text command

25 message Titras Companies

> Liero follows detailled descri Linked Terminal Stream I/O Device List The list itself is implemented as a linked object list, where each object contains the member functions and member data necessary to transmit data to the file, device, signal, or

data port referenced by it. ្នាក់ ស្រង់ ជា ទៅក្រុសសុខភាព នាជាទីជា (ហើយ ដូស្សិសសុធភាព ជិស្សា (និងការិស្សាទីជា ជីសេស្សមុខ ್ಕೃ≦್ ಕಾರಿದ್ದ ಸಲಾಯ ತಲ್ಲಿಸಕಾಡ ಸಹಾಕಾಸ ರಶ್ ಪ್ರಾಯಕ್ಕ ಪ್ರಕ್ರಾಣಕ ಕೆಕೆಯ processed in a state that Landingson end ad arms aspected

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Class Exception wobjude medaya adoval

Provides full implementation of the VCO exception handling operations that include reporting the occurrence of the exception; and subsequently shutting the VCO down. 5 Additional features of this component include the maintenance of an enable/disable flag that is tested by every public member function upon entry into the VCO; a disabled VCO must reject any call into it, and return the "Disabled" result code to the caller. There are a number 10 of flags that can be used to configure the exact modality used by the exception handler to respond to exceptions, and each modality must be supported by the exception handlergimplementation; inlaccordance with the brainson definitions shown in Fres 6A. The subdomponents residing 15 in this class are wested below, with an accounting of the specific operations for which they must provide support. enii qi tase ar **Exception Mandler** sis abon a ya lednagangos Operations supported by this sub-component must include the following a den appear to 20 wer a low reserver process WCO exceptions accordingly (see ការា ទេ២២២២ ១៩៨៨៤ **គេ៤. ហៀស** ១៩៩ ស្ដី ហែក្រស់! គឺ ១២ ៤០៤ -monage and opposide for capability to display debug . Le comit sesso of information message box Display "user" information message box 25) a abbod spire a Send text information message to Papolitan acoust of **farminal** so pulsuses of sections oga assiste of the Trigger Notifier on exception s vot vitages Jafrigger VCO disabler mechanism on THE LEGISLATIFICAN GREATER TON'T AND TO LOCATED LAND WITH THE CO. 30 • Disabler Mechanism of salling sub-component and the following: The must be seen the following: Maintain VCO enabled/disabled flag property of enabled/disabled

flag (see FIG. 19) be seer to

_ SCI 109 -

• Invoke system shutdown utilizing virtual coverride in VDI 1102 865. 17

Class Event arroar abelond want andicion

Provides full implementations of the VCO event
management operations. A list of Notifier Objects is
maintained, and a mechanism to trigger them is contained
in this sub-component. The VCO event queuing and
dispatching mechanisms are located in this component,
though critical section handling may be located in the VL
to make use of special operating system support for
semaphores and thread blocking features. There are
thirty-two (32) distinct events that have been

identifiers for these events and provides concised to definitions for each. The physical source of the event is labeled as either hardware (HW), or software (SW); and accompanied by a code that goes on to further clarify the specific system component from which the event is likely to (though not necessarily) emanate.

standardized for VMCS use b FIG: 660 shows the symbolical

- device set, must identify the most reliable source for VCO events originating in hardware, and then map vendor-specific representations of the event to those virtual, standardized, and described in FIG. 6B. Third-party

 25 device drivers in the MAC layer may not provide access to events identical in meaning or context to those cataloged by the VCO; some interpolated or emulated derivation (from events closely related) may be necessary for a compliant indication of the standardized occurrence, and any member functions created to approximate the representation of one such only marginally identifiable,
- in the PDI.

 The event manager is also responsible for managing the flow of trace information to its terminal output

should reside in the VL layer for invocation by members

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port. The sources from which trace information emanates, can be programmed in an additive fashion, by specifying a trace output profile. There are a number of flags, applied to express this profile as a logical combination of trace output source locations within the VCO's works, and each modality must be supported by the event manager implementation, in accordance with the definitions shown in FIG. 6B. The sub-components residing in this class are listed below, with an accounting of the specific operations for which they must provide support.

- Notifier Object List Manager
 Operations supported by this sub-component
 must include the following:
 - - Remove Notifier Object from list and delete
- samme for affiger Notifier Object triggers
 - The second control of the second seco
- Lock Notifier Object List against

 add/remove operations while triggering

 Unlock Notifier Object List to allow
 - and remove operations
 - dounds self bootsfier Object List good of al
- The list itself is implemented as a linked object list, where each object contains the member functions and member data necessary to configure the Notifier Object's triggering profile, as well as to actually trigger it to
- deliver notification to its associated Notification Receiver Object.
 - Motification Triggering Mechanism

 Operations supported by this sub-component

 must include the following:

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variance and a furnitual Trigger, Notifier Objects in Notifier: or various and Dbject, List (see FIG. 10) Event Dispatcher .9100 T Operations supported by this sub-component must include the following: Dispatch eyent (see FIG. 11) 45 1 24 • Start dispatcher of the control of • Stop dispatcher common water to the common state of the common s Set dispatcher rate . The rain and the ligure dispatcher to the section suggests 10 Event Queue one organizations supported by this sub-component must include the following: or wooddo we fairon we event to queue, (see FIG. 11) Remote event from queue (see FIG. 11) 15 pus dall moth treff greve around stalab

Provides full implementation of the VCO Notifier Object (NO). Each NO is a self-contained reporting 20 mechanism called a thunk. This thunk must be created by any class that wishes to be informed of the occurrence of a VCO event. The thunk provides a globally defined entry point to the address space of the instantiated class object that is to receive notifications and the thunk 25 retains knowledge of the exact class name and specific class member designated to receive notifications (from the NO residing in the VCO itself). The NO stores a pointer to this global entry point (the thunk), a pointer to the Notification Receiver Object (NRO), and a pointer 30 to the NRO's Notification Receiver Member (NRM) that is the ultimate destination for delivery of notification. The NOTIFIER data structure from which the Notifier Object is derived, contains all of this information, the achieved objective in its tracking to enable an immediate

35 conveyance of a unit of system event information (a

- EII--112 -

standard VCO event) directly from a driver-level component to the application, as soon as there exists an opportunity for the operating system to run the interested application? With regards to VMCs 5 implementations and their notification mechanism, system designers should first reflect upon the following: Same Notifications are designed specifically to operate like system interrupts, independent of user interface event queues. Like 100 000 000 000 000 1nterrupts; they require service only in response to very specific occurrences to 31 collected which they are programmed to respond -and lass aservice fout these do not have to test for a aver lilv Jenwidenpangemof-possible triggering events, but emlr-(kacantaccodirectly with simple; well-defined yo becereasoperacionsem sad or paibrobbs. - almost ifications from the VCO are virtually Is the start unaffected by user-interface operations, and en la la la la la comes la remever lost to mqueue-full" 20 conditions. They are fast, configurable, flexible, and offer a measurably more Feedback mechanism than the typical "Ond a Good Guisevent delivery mechanisms, but expectantly can interrupt drawing operations * The start of the progress of Drawing operations, to display and delivered by a Notifier Object, form are best executed from a specific painting routine, whose invocation is governed by the receipt of paint messages from the GUI --30 messages and graphics to the display with each notification can prevent the GUI firm processing messages in its own event (TI de queue. This instruction in St. 1 Consistent with the previous point, NRMs should be constructed as high-level interrupt 35

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favor service routines that insert anvevent into
    TRANS & LAND the application sevent queue (GUI sevent
        garage stream) / gor spawn-achewcthread to exact some
           gareffection the systemuland returns immediately.
   To delay processing on a notification thread
       could delay notification to other VMCS
     objects (if a single thread is used by the
 triggering mechanism to trigger all NOs).
       Beyond delay, none of the usual problems
    _____associated_with_delayed_interrupt processing
10
    na secusive occur, since the YCO queue tretains all events
     -- base estilloprocessings resumed; one information is
  s was draid of eyeralost. Further nove openes are but
call pareve call shadows of real-time exents that will have
15 nothing of the long since been serviced in real-time,
              according to the methods implemented by
    driver-level overdestapeqific (components.
 service all outstanding event notifications
     and return long before the VCO dispatcher is:
20
       ready to remove, another event from its queue.
 The constructors of Notifier Objects add them to a
   linked object list upon construction, and remove them
 from the list upon destruction; their structured
25 integration into a linked storage format is managed
   automatically. An accounting of the specific operations
   for which this class must provide support are listed
below:
                   - imanosari esosi . sui musu
    Notifier Object, Operations
30 Operations supported by this sub-component
   must include the following:
    Find Notifier Objects to trigger in
                  linked object list (see FIG. 10)
     Trigger individual Notifier Object in
35 grant to the state of the list (see FIG. - 10) black is
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- Set Triggers
- Get Statistics
- Reset Statistics

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Class VDI

Provides full implementation of the VCO Software Control Interface (SCI), along with a number of private support functions. Any device-independent routine necessary to VCO implementation resides in this class. The header file VDI.H (see Appendix) contains all of the 10 constants, enumerations, and data structures used by both server and client portions of the VMCS. Following those definitions, is that of the SCI. These member functions are the Virtualized definition of the VMCs control mechanism from the client application's perspective, and are the only public members of the VCO; notably excepted is the VCO constructor and destructor in class VCO. Not shown in VDI.H are the device-independent call and protocol management routines that provide support for the VCO connectivity sessions. They are implementations of 20 various Recommendation H.320 protocols. The sessionrelated sub-components residing in this class are listed below, with an accounting of the specific operations for which they must provide support.

Network Session Operations

Operations supported in this group of member functions have public entry points that are represented in the SCI (see Section entitled VDI Header File in Appendix). They are noted here to reference figures that detail their flow control pathways. The Network Session operations must include the following:

- Construct VCO (see FIG. 24)
- Destruct VCO (see FIG. 24)
- Open VCO (see FIG. 25)

25.

Close VCO (see FIG. 26)

Make call to remote station (see FIG. 27)

Execute multipoint call operation (see

Hang-up call or line (see FIG. 29) Media Control Object Device Control

Operations

PRODUCTOR TO THE PROPERTY OF T Operations supported in this group of member functions are accessed by the public

audiovisual/data signal switching control, members in the SCI (see section entitled VDI Header File in Appendix), A guery flag passed aroliboura waawigw

during a call to this member function ಎರಜಾಗಿದ್ದಾ ಟಿ determines whether or not a request for service or capability query is invoked. title (ovirosiguis

ostqatka Yüdadə Operations supporting the service and guery requests must include the following:

Media control operation service request (see FIG. 20)

constituty researched there Media control operation query request (see FIG. 21) ೧೯೮೮ ಕನ್ನಡಚಿತ್ರ ಪಡೆದಾಗಾರವು ಕಟ್ಟಿಕ ರಾಮಗಳ ತಾ.

Device-independent Call Controller Operations supported in this group of member functions respond to line state events from the Device Event Processor, to manage the connectivity session. Call control related members must include the following:

> Enter call controller and process line event (see FIG. 14)

Execute procedure to handle incoming line disconnected (see FIG. 15)

Execute procedure to handle incoming line dialed (see FIG. 16)

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- Pine ring (/ see FIG. 17)
- Execute procedure to handle incoming
- 5 Execute procedure to handle incoming
- Execute procedure to handle incoming
- 16 DIVINIO OF SET TO RESET FCAINFRATE TO GETAULT STATES (See
- minute of selection default connected device modes
- office as a policy set connected device inddes (see FIG. 18)
- Device-independent Capability Exchanger

 15 of the operations supported in this group of member

 15 of the operations contribute to implementing an

 2 of the operation that employs an H-221 mode-
- capability cross-reference table to determine
- 25 privile poperations are internal to the VCO, and must include the following:
 - Accessibility to an H.221 modecapability cross-reference table
 - Security of the (See FIG. 12)
- 30 Section (See FIG. 12) To see associated with mode (see FIG. 13)
 - Lance 12 1200 22 Determine if Total Station supports
 - cov referiore o di figuerar remi co con import

This could be easily Determine wife memote station supports - capability (see FIG. 13) charry • St. Device-independent Device Event Processor . A member function in the VDI is a Notification Regeiver Member that receives notifications of device events from a Notifier Object created by the VCO at the time of its construction. Any events in FIG. 6C, whose source is identified as hardware, is considered a device event, and the Device 10 Photo applying Event Processor responds to them to maintain the current connectivity session. Device (a) and saw) asevents are processed according to a specific algorithm that routes them through. 15 where to two mappropriate control flows depending on their ma your particular category (see FIG. 23). Pure Virtual Device Control Members There are no implementations of these members class, yDI; only the member declarations are present (see section entitled VDI Header File in Appendix) These members are used extensively, by implementations of other VDI members to provide the device interface for and the allieperations that access vendor-specific driver components and their underlying physical devices say say say

Class VL - spreng betweenone gold decase

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Provides full implementation of any members necessary to convert, translate, map, or interpret operations and data formats between conventions used by logical controls in the VDI, and Physical Device Interfaces accessed by the PDI, (MAC layer components). This class may vary greatly in the number of member functions it must contain for a particular VCO

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implementation. The header file PDI.H (see section entitled Physical Device Interface File in Appendix) contains a definition of an empty class VL to show its role in the derivation of the VCO. Virtualization operations are unlikely to be device-independent, however the categories of operations they commonly must implement are preserved across most VCO implementations, and are as follows:

Virtualization Operations

Software Component Load/Initialization

Software Component Unload/Shutdown

Configuration Information Access

exadment to govern the Data Exchange Syntax Mapping/Emulation

est so enclosinged established toast 3295 eration

System Information Mapping/Emulation

Capability Exchange Mapping/Emulation

System Exception Mapping/Emulation

Media Access Control Mapping/Emulation

evel Jel west; at protocol Mode Mapping/Emulation

20 Class PDI

10

Provides full implementation of the VCO device control interface, including a number of operations to interface operating system services. A pure virtual override member must be implemented to support the operations defined for the pure virtual device control members defined in the VDI (see section entitled VDI Header File in Appendix). The header file PDI.H contains the definition of class PDI (see Appendix) and shows its role in the derivation of the VCO. Implementations in class PDI have no restrictions on the way they interface devices. Media Control Objects (instances of class MCO), are the preferred mechanism. At the time the VCO is opened, when its devices are initialized, the PDI creates an array of Media Control Objects that describes the

available, and expected-to-be-available, audiovisual/data signal types. These Media Control Objects contain the member functions and data structures needed to control the device that is the source of, or destination for, the 5 signal they represent to the VCO. The next section entitled MCO Device Control Mechanism goes on with a further discussion of the Media Control Object Device Control Mechanism. The sub-components residing in this class are listed below, with an accounting of the 10 operations for which they must provide support. Pure Virtual Device Control Member Override

Appendix).

Operations accommitmed Operations supported by this group of members to its took polings in the special structure of members are best described by the descriptions of the pure virtual member functions defined in class VDI (see "Class VDI"). The pure virtual

Thomas overrides residing in class PDI are ne description implementations of the pure virtual device control members declared in class VDI (see section entitled VDI Header FIle in

> TAT ME NO WY • Device Capability List (H.221 Capability BAS

Tarting (Odes) to a pathwinai , worthward lowence A list of device capabilities is stored in the VDI (see section entitled Bit-Rate Allocation Signal Header File in Appendix), as but must be maintained by the PDI. A local capability list in the VL is copied into the VCOPARAM structure in the VDI during VCO. construction. Incoming capabilities from the remote station are written to the remote capabilities field of the VCOPARAM structure, by callback members in class PDI, and are

called by the connectivity protocol stack

when capabilities are transmitted from the

20

Tremote station. VCO device capabilities are alia represented as device-independent constants, so there may be a necessary mapping operation from the BAS code (or proprietary) representations used by the connectivity 5 protocol stack to/from those defined for the AND LEST TYMES PORT BUS BUSINESS SECTION AND Dévice Modes List (H.221 Device Mode BAS issuming the act of the Codes) A list of all H.221 device modes is kept in 10 the PDI as a reference. This list is used to of thousand we determine it a mode is standard, nonbacker standard, of a given type, or invalid. was a partie to be bevice by and Linkages to Quebe to the execut 15 In order for the PDT to be informed that device events have occurred, a number of callback functions are declared in this class. Such callbacks can typically be classified and implemented as follows: 20 Connectivity Protocol Stack Callback Members are called by routines in the software modules that implement the connectivity protocol. In connectivity protocol stacks encapsulated by the VCO, The Callbacks come from the OSI 25 bea (Con east to martransport layer (or its equivalent). and the to are They calf the VCO to report any changes in line states, the arrival of BAS codes be the to to from the remote station, and for a wide variety of status-related events, as 30 defined in FIG. 6C. Media Access Control Callback Members are called by routines in the device . 207 assis to a trivers that comprise the MAC layer. They call the VCO to report changes in 35

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Upon receiving an event from any callback function, the vendor-specific event is mapped or translated to one of the standard VCO events, and added to the VCO event queue. Routines in class VL may be called for this purpose.

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10. Class VCO all eit accession e as 100 oft

There are no specific components to implement in this class. Extensions to the VCO feature set, beyond those related to control of the encapsulated sub-system, should be added as members to this class; it is the place specifically intended for such enhancements. The header file VCO.H contains the definition of class VCO (see section entitled General VMCS Header File in Appendix) and shows its role in the derivation of the VCO. All client applications must include this file in order to access the services of the VCO itself. Class VCO is the class that is constructed by the client, and it presents to this client a number of public member functions described as follows:

Public VCO Members Available to Client

VCO is the constructor of the VCO, and invokes the constructors of all less derived classes when invoked.

VCO is the destructor of the VCO, and

invokes the destructors of all less

derived classes when invoked.

• Inherited Public Members from the SCI are all presented to the client application as members of class VCO.

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Implementation-dependent Extensions can declare public member functions in class vco that offer their services to the client application seamlessly with other vco functions.

MCO DEVICE CONTROL MECHANISM

The device control diagram depicted in FIG. 7 shows how the VCO is able to reference the devices in its encapsulated sub-system as configurable representations 10 of the data streams that they generate, process, or redirect? Client calls to the SCI are shown to invoke SCI members that, according to their specified function, rely on calls to pure virtual device control members for their implementation, thus not all SCI members are included in 15 the diagram. The sixteen default Media Control Objects are arranged in the drawing to clearly demark the lowlevel, vendor-specific component to which they correspond, and manipulate when affected by PDI calls to their members. Vendor-specific MAC components should be 20 considered bi-directional -= they support control pathways and data streams to and from a media control sub-system -- and the different types of transducers required for each direction are clearly evident. Concordantly one finds the "audio" objects reference a 25 MAC component supporting audio input and output, and to that single MAC component is connected both microphone and speaker. PDI calls made directly to the connectivity protocol stack and MAC components are not shown explicitly in the drawing, as the exact structure of 30 their interactions are left to the implementer's discretion. athom end (maidede author to be nome the of or log

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Summary of Device Control Mechanism

Client calls to the SCI invoke members that often require the support of the encapsulated multimedia connectivity sub-system in their implementations. The 5 implementations of SCI members, such as "Open" and "Call", make requests for physical device control services by utilizing at least one of the pure virtual. device control member functions declared in class VDI; these members are private and entirely separate from the 10 public SCI members offered to clients. The PDI contains overrides for these pure virtual device control members. These overrides invoke the appropriate device operations by making calls directly to the connectivity protocol stack or MAC layer components, as is appropriate to the desired device control operation. Implementations of the pure virtual device control overrides must perform any and all interface to vendor-specific hardware and software components necessary to fulfill the specified expectation of the pure virtual device control member in the SCI. their tembers, verifice-apacific MAC composition

If the particular SCI member, called by a client, is MediaControl, the method of interface to the physical device is different from that used for call and protocol operations; its purpose is to switch or configure the audio, video, image, or data signals represented as virtualized system objects, or Media Control Objects. In this case, the pure virtual override for MediaControl, implemented in the PDI, then manipulates the members of Media Control Objects that have been created to represent the various available signal types. Depending upon the exact nature of the request, audio, video, image, and data signals are combined, redirected, displayed, or routed to local devices or the remote station. The Media Control Objects can also be used to set various modes

35 (associated with the signals) by directly controlling the

device associated with dita The operation of the Media Control Object device control system is detailed as follows: 19982 199740 formous sidely was

- of Primabilyathere exist sixteen default Media

 5 Control Objects as shown on the right side

 all the control of the control
- Theresis an imput and output object to/from the remote station for each signal type (see
- 10 grant representing information shared between the local station and the remote station.
 - and moit There is an imput and output boject to/from a
- representing information shared between the
 - The objects are only created when the signal of they represent is within the capabilities of the system to support. They are only enabled
- 20 month of when the signal they represent is actually early available for access.
 - Anyonumber of Media Control Objects can be created in the VCO to control more devices and data channels, as determined by their viscos detected system device availability by the
- specific signal type and direction, can be as a seattached, or "plugged into" another Media

 30 remain local Control Object that is compatible in both as signal type and direction; For example, an audio-source from a local device (microphone)
 - on doos see: can be attached to an audio output to a security of a secur

3.5

siteM par remotesstationTcanibe attached to ansoutput as Sassatto a local device (wided display) Each Media Control Object, regardless of The structure that ______reflects the various states and modalities of the signal. Member functions for each Media Control Object vaallow them to be manipulated as independent ouni-directional channels. Certain Media Control Objects can be combined into composite media control objects that rolling describe a complex signal type, such as Energy of Topic multiplexed audio/video information. The the seal sayobjects can also be combined with objects that subject them to a specific transform, or 15 SALT CARRYLAND SPLIT Join configuration-server True or Setting the parameters of a source/input Control of the object invokes a sub-system (driver-level) to said the stempt to change the settings of the source and lead of the device or station, whereas setting the parameters of a destination/output object attempts to change the settings of the

Audiovisual/Data Signal Switching Mechanism

The New Brown forthog

. . . . destination device or station ...

Device control operations are made directly 25 available to VCO Client applications through the implementation of the MediaControl SCI member function, along with some related members that assist in the manipulations of these objects. The SCI members map to essentially identical pure virtual device control members 🦈 30 implemented in the PDI. The switching of signals and device modalities generally takes place by selecting constants from various enumerated categories (see section entitled VDI Header File in Appendix), and presenting them to the VCO with the MediaControl member. The format

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of the arguments is constructed so that the specified operation applies to the currently assigned default Media Control Object for the specified Media Control Object type (see FIG. 7A) For example, a command to mute the 5 input microphone would likely reference AudioSrc as the Media Control Object type. Handles are used to assign various non-default Media Control Objects as the default (one of the sixteen) for a given type. The continuous linear enumeration of all possible constant arguments 10 used for MediaControl function calls give each setting a unique numerical identifier, and thus each can be associated with a unique string token. The argument formats for all of the MediaControl calls are detailed in the source code section (see section entitled VDI Header re a video flapley. 15 File in Appendix). err or bebit so daum COM wed a is elided to

Media Control Object Physical Structure

privately derived from an MCOPARAM (see section entitled VDI Header File in Appendix) structure. Regardless of the signal type (audio/video/image/data) represented by the Media Control Object, the MCOPARAM structure contains sub-records for all signal types. The programmer need only attend to the relevant section for the signal type for that object. There are a number of requirements as to the structure of the Media Control Objects physical structure, with regards to the specific details of its implementation.

- All member functions and member data in the Media Control Object, are protected, and can only be accessed by the PDI.
- Class PDI is a friend to all instances of class MCO.

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Class VDI cannot access any MCOs directly, except through specific members that are erad Mindiga implemented by class BDI. ប្ទាស់ជា និង នេះ All MCO members presented to the PDI, should be simple, device-independent operations to manipulate the settings and operations precisely outlined by the audio, video, image, and data records contained in the MCOPARAM data structure. Here are made and what Each MCO should be fully cognizant of its 10 signal type and signal direction, and prohibit, operations that are inconsistent ALIBALLE DE with its fundamentally characteristic same are Selected orse properties, i.e. cannot attach audio output to a video display. . (K. Rosegija da esti a The handle of a new MCO must be added to the VDI tables in DEVICEPARAM when that MCO is created, and removed when deleted, such that the client always has a clear picture of 20 available system resources. Events must be queued for each and every MCO operation executed. Control Object, Regardless of the complexity of underlying a

Regardless of the complexity of underlying system components that must be initialized, addressed, or monitored to implement Media. Control Object operations, it is critical that the designer reduce the invocation of such processes to simple operations, described by the Media Control Object settings.

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30 MCO Interface to the Media Access Control Layer

Each MCO controls the device underlying the signal it represents by making requests to the Media Access Control layer components that drive them. The PDI pure virtual override DevMediaControl presents settings

to the Media Control Objects, and the Media Control Objects then go on to map the setting to a physical device control operation. FIG: 22 shows the control flow for device control operations that are presented to MCI 5 drivers that comprise the MAC layer. This diagram has greatly simplified the pathway from the VDI to the MCI driver, eliminating most of the interactions with the Media Control Object. In short, the PDI prepares a Media Control Request Record, and presents it to the 10 appropriate Media Control Object so that the object can fill in its fields, and present it to a corresponding MCI driver (see FIG. 22). Note that a device control operation initiated by the local station can result in the station assuming a new H. 221 device mode, which is 15 then transmitted to the remote station (if currently connected) for station synchronization, referred to as the lestablishment of common modes "by Recommendation" H. 3207 Finally, an event is added to the VCO event queue describing the new Media Control Object setting that has 20 taken place and to teament of Will me as down frament rain plumed vice idea data. The dute transport decinanism

STATION ATTACHMENT MECHANISM OF A LIBERT TO

There are a number of considerations with regards to the system components that must be created to support the "attachment" between two interconnected VMCS stations A pathway must be established between the two stations such that they can share text string commands streams. Once this pathway is available, the two stations must come to a mutual understanding how they will interact; that is, which station is the master, and which is the slave.

Beyond the standard attachment mechanism described, a third station can control any one of a number of stations that are themselves interconnected in a conference. In this modality, a "third party"

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controller, or "remote operator" can intervene in conference already in progress to assist nadiagnose wor monitor one of the conferees. The details of designs that would accomplish this task are supportable by the VMCS, 5 but beyond the scope of this disclosure. Below follows a description of the details for the VCO components used to implement the remote station attachment mechanism.

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From the perspective of one end of the attached a 10 station pair, the command stream is bi-directional -- to and from the remote station. A Media Control Object supporting text data output to the remote station; and another Media Control Object supporting text data input from the remote station, are created to encapsulate the 15 data pathways, Since mostly text message data will be to 1 exchanged, the pathway need only support low bandwidth (less than 16 kbit/s) on an occasional (asynchronous) basis. Data can be transported out band on a separate channel (such as an ISDN D-Channel) or in-banda sperhaps 20 multiplexed with video data. The data transport mechanism for message data can also be accomplished through a more tertiary source using an entirely separate connection from that used for primary communication All messages to the remote station are written to the Media Control and 25 Object encapsulating the pathway to the remote station and the while messages arriving from the remote station generate events as they are received by the Media Control Object encapsulating the pathway from the remote station of the

(a,b) for (a,b) , (a,b)Event Encoder

This component converts binary event records added to the VCO event queue to a text event message bodies as representation, and then sends it to the remote station. A definition of the binary event record is provided (see

section entitled VDI Header File in Appendix), however the exact text event message format is left to the system designer. Suffice it to say that the text message format used should be entirely universal to allow all VMCS implementation platforms to engage in "attachment". String tables in the Linguistic Controller areas of the VCO are used to convert the enumerated arguments to string tokens, whenever possible, while purely numerical arguments (such as parameters) are converted to ASCII hexadecimal strings. Each event message must minimally include the following information:

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Source station identifier

The event encoder is usually only accessed when the VCO is attached to a remote station. While the VCO is attached, the encoder is invoked by the VCO queuing-mechanism each time an event is queued. The encoding takes place using a separate thread of execution to avoid interference with device timing.

Event Decoder money a de rest decode e sont during

This component converts text event messages received from the remote station and converts them to 25 binary event records that are then added to the local VCO's event queue. This process is the inverse of the encoding process, and its success depends upon the consistency of the text event message format selected. The source station identifier tells the receiving VCO where the event came from, and the string tables in the Linguistic Controller are used here to derive a numeric representation by comparison of the string token keywords to their relative position in the tables, and derive a string index when the token is identified. The event

decoding takes place using a separate thread of execution dedicated to fielding incoming command and event messages.

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This component converts SCI calls to a text command message representation, and then sends them to the remote station. As with the event encoder, the exact text command message format is left to the system designer, and correspondingly, it should be entirely universal for reasons said. String tables in the Linguistic Controller areas of the VCO are used to create text command messages whose format is variable depending on the SCI command encoded. The command encoding takes place using a separate thread of execution dedicated to fielding incoming command and event messages.

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This component redirects the text command portion of the shared messages to the local VCO terminal input port, where they are interpreted, and then used to generate calls to the local VCO's SCI, just as if they had been input from a local user at a terminal keyboard. This process is the inverse of the encoding process, and its success depends upon the consistency of the text command message format selected. The event decoding takes place using a separate thread of execution dedicated to fielding incoming command and event messages.

Determining Capabilities

Each VCO has associated with it independent parameter blocks for remote control parameters and remote 30 monitoring parameters. There are separate parameter blocks each containing flags that indicate their current operating modes, and operating capabilities with regards

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to attachment. The control and monitoring capabilities are stored as nonstandard capabilities in the local capabilities lists, and each station will know those of the other at the time of connection. Once attachment has 5 been established, it is the station that first requests a particular control or monitoring "context" that will able to assume that role? When a role is assumed, flags in the associated parameter blocks mark the state, and prohibit any further context changes till the stations are 10 detached, disconnected, or the change is initiated by the "controlling" or "monitoring" station. 675 , una controlling edi ...vola arives medic edit , redasm to elor edit esevent Frencte Worltoring dars spanned of stosed wor only evalu As a subset of a full remote control context. monitoring of a remote station requires only that the 15 "monitor" station receives a stream of the events queued by the "monitored" VCO. Upon connection, both stations are monitoring their own locally queued events; they are operating under a local monitoring context. If one station permits (indicates it is capable of) being 20 monitored, the other can change its monitoring context, by setting its monitor mode flags to include the remote stations events, and therefore add the events from the other station to its own event queue, in addition to continuing to monitor its own event stream concurrently. 25 Alternately, it can monitor only those events of the other station, or monitor any one of a group of stations in a conference, as they come into focus (though a virtual attachment must be established with each individual station prior). Monitoring can occur bi-30 directionally at the same time; two stations may monitor

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each other concurrently:

Remote Control bus bus inwance on T .d. a tar I T

The assertion of control by one station, over another, proceeds similarly to the establishment of a monitoring context. In doing so one station's 5 capabilities indicate it will assume a slave operating context, while the other will be the master. Upon connection, both stations are controlling their own systems; they are operating under a peer control context, and have no ability to control the other. The master VCO 10 initiates the transaction to request operational control of the other, and if consent is given by the other and it assumes the role of master, the other as its slave. The slave VCO now reacts to commands sent by the master injust as if the commands had been issued by its local client * 15 application. [For gremote control to occur a the master must also monitor the event stream of the remote VCO. With the ability to transparently send commands to a slave of the station, and transparently receive events from the station in response to those operations, the VCO that 20 assumes the master control context becomes a fully operational virtualized representation of the slave station. And client applications, that run on the master, VCO are (practically speaking) virtual clients of the slave VCO. The program impression of the contract and the entra de la maria de maria de maria de maria de la compansión de la compan

25 MULTIPOINT CALLS one to the trained mad the Wildfantatia of

standard designs, protocols, and terms used for audiovisual connectivity sessions that involve more than just a local and remote station. ITU-T Recommendation H.231 (see ITU-I Recommendation H.231, MULTIPOINT CONTROL UNITS FOR AUDIOVISUAL SYSTEMS USING DIGITAL CHANNELS UP. TO 2 Mbits/s, 1994) describes such units and their various configurations. Attendant Recommendation H.243 (see ITU-I Recommendation H.243, PROCEDURE FOR

ESTABLISHING COMMUNICATION BETWEEN THREE OR MOKE
AUDIOVISUAL TERMINALS USING DIGITAL CHANNELS UP TO 2
Mbits/s, 1994) describes the specific operations
performed in a multipoint call environment, such as
5 adding, dropping, and viewing specific conferees from the
conference. These recommendations serve as the impetus
for the logically defined multipoint control operations
incorporated into the VMCS server (VCO) architecture. At
time of writing, there exist fewer than a half-dozen
10 widely available devices supporting a significant subset
of the procedures outlined by the recommendations.

VCO Multipoint Control Operations of has . COV Labol sir

Support for multipoint operations by the VCO requires the use of a multipoint control unit (MCU). 15 These devices have a number of NIUs, referred to as ports, that allow many audiovisual connectivity stations to attach to them concurrently -- the MCU serving primarily to bridge the signals from one station to that of many others, so as to enable a group to view an 20 individual. A specialized algorithm determines which conferee, at any given time, is to be seen by the others. In most cases, the strength of the audio signal (voice presence) determines the individual that addresses the conference. A chairman is specified to direct the 25 conference, and he possesses special privileges to administer its outplay; his responsibilities as chairman include the appropriate allocation of resources, the creation of conferences, and the configuration equipment as needed.

The multipoint control operations supported by the VCO MultiCall SCI Member are shown below (see FIG. 30). Calls to this MultiCall member map to the PDI DevMultiConnect member, one that provides an actual physical implementation for them. To support the

operations, this PDI member will typically be constructed to issue vendor-specific commands to a MCU resident in the station, or cabled to it with some communications link. All of the major operations needed to directly control the mechanics of a conference, as its chairman, are included. Further discussions of these operations are provided in the source code (see section entitled VDI Header File in Appendix). The CALLPARAM structure in the VCO has a number of flags and variables used to track and configure multipoint control operations. A series of the values referred to as MULTICALLSTATES provided detailed indications as to very specific states in both the local VCO, and the conference in which sit is a comparticipating.

The procedure to implement a VCO differs depending on whether the project is to create an initial server component, or to create a new component (from an existing one) that will work on a new multimedia connectivity sub-system. While primary (initial) VCO development requires considerable effort, secondary (subsequent) VCOs are comparatively minor projects in both time and resource requirements. The development of VCO clients can proceed concurrently with, and independently of, that of the server(s), the production of VCO Clients requires markedly less design and

VCO Implementation Sequence and and and address of C

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VCOs themselves.

The following procedure is applied to primary VCO development. Secondary VCO development efforts (based on the same design) reuse almost all components, without

development expertise than is required to produce the

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modification, thus steps 1, 3, 4, and 5 are not necessary to create them. Polives son aliso special race

1) Derive VCO Design

Prefatory to development of a VCO, a detailed design for a specific implementation must be derived from this disclosure of the VMCS Technology. In addition to describing the internal mechanism, this design provides the definitions of the external interfaces to client applications, and to other VCOs edayal of becorreated to run on different types of host stations; these specifications should be preserved for all subsequent implementations to maintain interoperability across the on two lar **network** distance rebau beppudeb

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2) Establish Sub-system Operability It must first be determined if the connectivity sub-system and associated devices are operational. Any test procedures and test programs must be executed on a subsystem installed and configured exactly as specified by the particular VMCS server (VCO) design discussed in step 1.

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Develop Virtual Device Interface Source code development for the VDI includes creating all of the classes from which it is derived. The device-independent portion of the VCO is implemented as a distinct unit that can be built without any dependencies on any device-dependent, or vendor-specific components.

Develop PDI Shell with Emulation Support Source code development of the PDI proceeds initially as an attempt to create a minimal 35 implementation that will support emulation

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for its pure virtual device control, overrides. Calls for device support return "Not Implemented", or if the VDI has invoked emulation mode, they return an emulated response, as if a device was physically present.

Punning in emulation mode, the VCO is debugged to verify the functionality of its device-independent portions. A small sample client application must be created to invoke

SCI members for testing purposes.

6) Develop PDI Physical Device Controls
Once the VCO is fully operational and
debugged under emulation, physical device
control is added to the PDI by providing a
software linkage of the pure virtual device
control overrides with the connectivity subsystem and associated devices previous
emulated in software. Media Control Objects

emulated in software. Media Control Objects are implemented, tested, and integrated into the device control system,

Debug VCO as Live Device Control Component Running in the default device control mode,

the VCO is debugged to verify the functionality of all of its components and features in a "live" connectivity environment. A sample client application must used, as in step 5, to invoke SCI members for testing purposes.

DEPLOYMENT

This section describes usage of the disclosed VMCS technology in an operational configuration.

Consideration is given to the underlying theories of VMCS

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operating principles, including discussions relating to the sequences of operations needed to manage various multimedia connectivity tasks encountered during VCO connectivity sessions. In essence, the following section serves as an operations manual for the VMCS, focusing mostly on the services provided by the VCO.

OPERATING PRINCIPLES

vco construction is a process defined by C++ as
means to create a binary software object from a class
definition. With the vco, the client initiates a
construction process that is in no way different from
that of any other class, and the vcoparam data structure
is initialized, along with other initialization tasks.

Upon successful construction of the Virtual Connection
Object, its principle data structures and capabilities
are available for perusal.

Construction gives the client access to VCO internal data structures, use of basic device-independent services, and the results of a perfunctory examination of requisite supporting sub-components.

By the time VCO construction has completed, its dispatcher is running, and it has uploaded all configuration parameters from backing store. At this time, the notification mechanism is fully operational, and Notifier Objects can be created for use by the client.

Following VCO construction, the VCO terminal input and output ports are active, and can be used by the client to send text messages to output devices, or to decode command input.

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Although the VCO may have successfully constructed, no drivers have been loaded, no devices have been accessed/initialized, and ನ್ನ ಕೆಬ್ಬಾಕ್ there is no way for the client to know if the hardware necessary to run this VCO is actually installed.

DESTRUCTION

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Puntaralai della UKI VCO destruction is a process defined by C++ as a means to destroy a previously constructed binary software object. With the VCO, the client invokes a destruction process that is in no way different from that of any and the state of any and the state of the s other class. During the process of VCO destruction. មន្ទាស់ មេខាធិការ មេខាធិការ មេខាធិការ issued -- the VCO waits until the disconnect sails dring made dilw prolations of completes -- and all associated VCO Laurence to postpuritance in large our requirements. CONTROCT 10A components and drivers are unloaded. The VCO dispatcher is halted, and any Notifier Objects are deleted, thus NOTE OF BRADE

Notification Receiver Objects in the client will no longer receive information.

The terminal, and all other VCO services, are no longer available for client use, since the VCO does not exist following destruction. CONTRACTO D

NOTIFICATION

uploaded all contiguration Once a client constructs a VCO, it can create a number of Notification Objects, the maximum of which is determined by the system designer. Notification indications are sent to the client immediately following construction, should any triggering events should occur.

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The NewNotifier command enables the creation 30 of a Notifier Object, returning the handle to one just created as specified. When the Notifier Object is created, it is intimately omari (nav

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associated with one particular Notification Receiver Member contained within one particular Notifier Receiver Object, neither of which can be changed; a new Notifier . Object must be created to direct notification to a new object member combination. • The DeleteNotifier command can be used to delete Notifier Objects, the handle of the Notifier Object being used to identify the instance to delete. Many to have 10 The EnableNotifier command can be used to unil we designable of disable the specified Notifier usunga gade sobject. seach Notifier Object can be disabled The second to stop the vco hotification process to that 15 particular Wotifier. When enabled and volume actively receiving notifications, a call to and suithe client's Notification Receiver Object (by reade the Notifier Object) occurs to prosecute o indication of the occurrence of an event, during which time, it cannot be reentered by another such call until it returns from era and processing that event currently in play. The SetNotifierTriggers command allows the JOV as client to change the set of events that cause 25 mind wildshow the Notifier Object to trigger; that is, vassid lagget invoke the Notifier Object to deliver c an additionation to a specific member function of a specific class object, indicating that a particular VCO event has taken place. 30 . Brown to The TriggerNotifiers command can be used to trigger one particular Notifier Object, unconditionally, or to present an event to the triggering mechanism, allowing it to way will suffice Objects for the VCO that ado de Los paíticos paragras dini do masal ado

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contain that specific event in their triggering profile.

Notifier Objects cannot be created or deleted while processing the notification of an event, because the internal list of Notifier Objects is locked. However, the triggering profile for the Notifier Object can always be modified.

CONFIGURATION/SYSTEM SETUP SERVED OF SERVED

There are two distinct services available to VMCS system users for configuration/setup. The first is the ability to maintain a VCO initialization file that stores a text record describing all of the startup defaults for major categories of VCO settings, including a description of its network service, standard terminal output device, local station identity, dispatcher rate, device and connection time-outs, conference profile, and other default settings. The second is the ability to invoke dialog boxes containing detailed configuration/system

20 setup utilities that are provided for each of the four possible media types (audio/video/image/data) that are potentially handled by the VCO.

The initialization file is read at VCO construction time, and lits user-readable text arguments are converted to an internal binary format stored in the VCO, accessible as a data structure to VCO clients.

The SetConfig command allows clients to write a new configuration structure to the internal VCO configuration structure, and at the same time activate the new settings.

The RefreshConfig command allows clients to upload the VCO's internal configuration from its default initialization file, and at the

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same time activate the new settings. Alternately, the command can be used to upload the internal configuration stored in the initialization file into a client configuration record, leaving that of the VCO configuration record unmolested.

The StoreConfig command enables clients to store a configuration record directly in the default VCO initialization file, overwriting 10 0 0 1 1100 10 the existing configuration, or alternately, it enables clients to similarly store a beatible saconfiguration record held privately by the wassaug asisteliene. Tindeither Case, the Cata elements in the configuration record are converted to www.ser-readable text arguments prior to being stored in the initialization file.

Contribution of the design of the series and the series and the series and the series are the series and the series are the series and the series are the se end users to adjust relatively minor vendor-The specific device driver and operating specific system parameters that do not map well to the generalized, device-independent controls offered by the VDI and associated media was a siveentrel device control settings.

ou se was some with these adjustments to for any bestime ted to those settings that are usually is set once during initial system installation, command subsequently left mostly alone; they are settings that tune and enhance the operation of the standard VCO device control 30

operations, and are not intended to duplicate The section of replace them. The second

The strategy behind these utility screens is identical to that used by advanced Spicrocomputer operating systems, employing graphical user interfaces, whose printer

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device driver, designs, require an integral na first . "setup dialog" to enable the user to configure the specialized hardware features of a target printer device, prior to sending the job to the print; queue. As specified by the system design. configuration, and setup parameters adjusted in these utility screens are used to set the device default settings that are later 10 The land of the manipulated through standard SCI calls to the device control sub-system. Moreover, vendor-" of the secificaconfiguration files are modified The statements sympergayia links to their particular private or bear software companent configuration scheme. 15 percent or every The SetuphudioDevices agammand invokes the audio-setup utility which provides The second adjustments for microphones input sensitivity, ... Species (Little frequency equalization, output gain, The result is reduced physical singut foutput port 20 _____selection, noise filtering, and recording. the server coptions and -borrest bear accorded The SetupVideoDevices command invokes the wideo setup utility which provides camera adjustments such as white balance, access to test modes, NTSC/PAL mode selection, and focusing mode selection. Additional adjustments for video display include those that affect, color, tint, hue sebrightness, horizontal alignment and vertical alignment. 30 The SetupImageDevices command invokes the image setup utility, which includes output settings for any hardcopy display/printer device, or wideo display adjustments for factors similar to those in the video setup. more they access to all simples much locally page

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Input settings for imaging devices typically relate to form size and ambient lighting. The SecupDataDovices command invokes the data setup utility, which is more nebulous in its specific format, and whose settings may range from communications port settings to disk drive specifications for backing store. The VMCS make no presumptions as to the ultimate use of data streams, thus the derived VMCS design must specify the data setup utility. Typically, a VCO that directs a data stream or bess with to/from a communications port will maintain settings for band rate, parity, stop bits, and other asynchronous data transmission 15 yu yu here m**settings**to admiroa (insula COV local climat, reed from social climat

TERMINAL SERVICE SCHOOL & SCORE BOYCHVEADAG

The VCO terminal service provides an input and output port. The terminal output port functions as a standard output device that displays character stream data written to it, while the terminal input port accepts character stream data written to it, and interprets it as VCO text commands. Character stream data takes the form of null terminated ASCII strings, referred to as text messages. The hull character is used to denote the end of the message. Format dictates VCO text command strings terminate with a carriage return, and intervening nulls that terminate command (sub-strings) are ignored by the decoder.

Text messages sent to the terminal output

port may be written, concurrently by the VCO,

to more than one physical output device,

following each client text output operation.

Physical output devices configured to be written when text messages are sent to the

VCO terminal output porturare referred to as port, attached (to the output port). Resultantly, clients sending text messages to the default vCO terminal output port will find that the 5 some text message has been duly written to all output devices attached to the terminal output port of the bloods of a Text messages sent to the terminal input port are parsed into string command and argument tokens, and interpreted by the VCO as representations of SCI commands. Once a text command has been fully decoded, it is used to affect SCI member functions, thereby providing a scripted control mechanism to any VCO client; scripts can be generated by the 15 local client, read from script file, transmitted from a remote client across (as) connection, or entered directly from a terminal. The first sale of the second section and the second sec • The terminal service is available immediately 20 following construction. A default output device is identified, in the configuration stored in the VCO initialization file; and attached to the terminal output port A range of standard output device types can 25 be added or removed from the list of output devices attached to the output port. All output devices are written with every text message that is sent to the terminal output port. 30 一切"治路电影"。2714年是 The ToTerminal command is used to send an optionally formatted text message to the VCO terminal output port. The command functions similarly to "print" statements used by

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various programming languages that send text to a standard output device.

The FromTerminal command is used to send an optionally formatted text command (VCO script command) to the VCO terminal input port. NOTE THAT the terminal input port cannot be read for input by the client, as the term input refers to the provision of input data to the VCO from the client. The client is the source of the character stream. Since the VCO has no reason to request commands from the client golfund and (only the client can initiate the issuance of outrooge-Tob Commands) the onus is on the client to send those commands to a mutually agreed-upon place where the VCO can receive them, and in so doing, invoke the VCO to decode them. Reiterated more plainly, the client "stuffs" script commands in a buffer, and calls the Character Sacrocof to interpret them.

A Notifier Object may be created and utilized as a terminal output device. When the Notifier Object is attached to the terminal output port, it may be triggered by any VCO (or client) text output sent to the terminal output port, thereupon the Notifier Object is explicitly triggered so as to make the client's Notification Receiver Object the recipient of every text message sent to the terminal. This mechanism allows any client to 30 direct all text message output to a client's .ans sign in text processing routine. (ଜାଲା ଅଟୁର ଜଗରପ୍ୟୁର୍ଥିନଥ) ଅଟୟ କ୍ରିଟ ଅଧି ଅଟେ ୪୯୯୪ ଓଡ଼ିକ

NETWORK SESSION TO A THOU YOU THE TOTAL THE TOTAL

Establishing a network session is accomplished by invoking a sequence of SCI members. Construction and

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destruction of the VCO frame the connectivity session in that a VCO is usually selected and constructed just prior to connecting to a remote station, and is subsequently destructed immediately following the termination of the connection to it, therein freeing all system resources erstwhile allocated to the maintenance of that association. The process of associating two stations across the network, for the purpose of exchanging audio, video, image, and binary information between them, is advanced by a sequence of VCO operations next described:

The Open command initializes the encapsulated multimedia connectivity sub-system, loading and starting all supporting vendor-specific software components. Until the "open" is performed, only non-device related VCO services are active. All devices are started

and tested to determine that they are fully operational. All available signals are represented in newly created Media Control Objects, and then are opened for use. The

entire sub-system, including all hardware and software components, is set to default startup settings, and the network connection

is verified. If the open is successful, a connection can be established at any time, and all local devices are accessible to the

client, to be controlled by the user.

Incoming calls from a remote station may be

handled following a successful open.

The Call command initiates a call to a remote station. In the preferred VMCS embodiment, the network is the ISDN (telephone system) and the "call" operation results in a direct dialing of the number of the remote stations line(s). Just as with a standard telephone,

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- Ethe visual telephone service provided by the WMCS requires no further action by the client, and a simple result is returned. A successful connection process results in the execution of an internal VCO process to establish a series of baseline operating modalities for the type of session established. For the visual telephone, a video window is displayed showing the far end, remote station audio is audible, and both local video and local audio are sent to The remote station. Thage and binary data add bee saccifacilities are initialized as idle, and pathways await client operations to exchange 15 described information. In short, the "call" operation of the VCO's visual telephone system works in an identically analogous fashion to making a soles of wealth with a standard analog telephone: on concurrently exchange 20 information bi-directionally, without delay. The MultiCall command enables the initiation of a number of complex multipoint control operations (see FIG. 30). If the local station is the conference chairman, the VCO client can add and remove conferees from the 25 and the business conference, among other administrative functions, all of which require the ability to control a multipoint control unit (in some direct or indirect fashion according to the actual physical implementation of the VCO service). Other multipoint operations include various query and broadcast operations that may or may not require an advanced level of Est of MCU control. The client can query any of these operations to determine if they are 35

currently supported by the session in will ve progress. The client can determine if the VCO implementation supports the operations at all by examining the VCO sapabilities list, which includes multipoint control capabilities that are proprietary to VMCS technology. • The Hangup command enables the client to drop one, or more (all) lines used for the current call. Similar to the "call" operation, the "Hangup" operation of the VCO's visual telephone system works (by default) in an the "Hangup" of a standard analog telephone: end the egasarks of ecologian of the delay we eventure The Close command shuts down all devices in the multimedia connectivity sub-system, and inloads all vendor-specific software components All client access to device control services is no longer available, and Media Control Objects are all destructed. Neither incoming, nor outgoing calls may be handled, and only the non-device related services, remain_active.

MEDIA DEVICE CONTROL

Device control is available to the client by the manipulation of Media Control Objects via calls to the MediaControl SCI member. The VCOPARAM structure contains a list of the names of all available Media Control Objects active in the system. This list will be empty if ... 30 the VCO has not been opened first, as the list of Media Control Objects reflects the signals available for manipulation by the client. A list of the handles to these Media Control Objects is also available, and information about them may be obtained using the

್ರಮ್ಯಾಕ್ರಮ್ ಕರ್ಷ-೧೯೯೫ರು ಕನ್ನಡಕ್ಕೆ ಪರ್ಚಿಕ್ಕೆಗಡ

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appropriate SCI member function Principles governing the control of the devices in the encapsulated sub-system, and their associated operations, are shown below:

There are four signal types (audio, video, image, data) and four signal directions (to remote, from remote, to device, from device) from which sixteen Media Control Object type approximations are derived. These are the www....sixteendefault Media Control Object types that may be addressed by type in operations despit est in D(Sée)Figin7A);edepre decoidsteq

Following Successful Completion of a VCO open command, any available signals in the VCO are represented as Media Control Objects.

automatically opened for use, and enabled. They are not switched on initially, but must explicitly be turned on by a client command s @ her or by connection to a remote station.

The MediaControl command enables clients to change the settings for any active (existing and enabled) Media Control Objects assigned to be one of the sixteen default types.

Additionally, switching of signals (in the form of plugging together source and

25 destination Media Control Objects), creating composite signals from multiple input

signals, and a host of related functions can also be accomplished with this command (see section entitled VDI Header File in Appendix) . The first product of the structure of the

* • Ensite SetDefaultMco command can be used to assign a non-default Media Control Object as a default Media Control Object, if it is the same type as the one it is replacing. oka. I galopuo esta usta kasta 1199, Jestua 1.

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The GetMcoHandle command can be used to retrieve the handle to an Media Control Object from its name label or object type. GetMcoLabel is a command that allows the name label for the Media Control Object to be determined from its handle. The GetMcoParam command can be used to retrieve the internal parameters and settings for a specified Media Control Object, and thus it can be used to determine the operational states and settings of the signal represented by the Media Control Object, as well as the device (if any) that is the source or destination of that signal. tire

Data objects may be exchanged with single operations, between stations that are both running a VMCS; each of which fully understands the data formats and "transport layer" protocols of the other end. For 20 now, such issues are left to resolution by the system developer who must determine the exact protocol used to transfer the VCO's data objects as described herein. Though lacking in international standardization, manipulation of binary data objects is operationally well 25 defined and described to client applications by the VMCS (The Software Control Interface and the logical manipulation of which is clearly implemented in the "session layer" residing in the VDI). Fortuitously, the ITU is currently working on Recommendation T.120 (Data 30 Conferencing) to enable standards-based exchange of binary data objects. A case could be made for the utilization of this VMCS model for all connectivity software systems on the sole basis of its ability to insulate applications from the ongoing T.120

specification, and the complexity of its implementations. As of this writing, T.120 remains incompletely specified, only partially implemented by any real products, and even less well understood by system developers. It is expected that T.120 will eventually provide the language necessary for the VCO to conduct its binary data object exchanges below the session layer, in an entirely standards-based fashion.

- If the remote station is not running a VMCS,

 10 simple data buffers and cursor positions may be sent
 according to existing procedures for information sharing
 in H.320, but support to transfer entire binary and/or
 text files may not be available. If it is determined that
 the remote station connectivity sub-system is a
- object can be transferred. Otherwise, if the data object to be transferred is a file, the remote station will be unable to respond to the VMCS proprietary file transfer protocol used on the data channel. Support for the
- 20 exchange of cursor positions, facsimiles, still pictures (images) and raw data buffers is supported by most H.320 compliant stations, and thus possible between a VMCS and any remote station to which it may be connected. The mechanics of exchanging data objects between stations are discussed below:
- The Transfer Buffer command enables a client to send a buffer of binary data through the data channel (or multiplexed data channel using an allocated portion of its total bandwidth), to the femote host. This command can also be used to determine if the data channel to the remote station is available.

 The TransferObject command enables a client to send or retrieve a specified data object

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through the data channel or multiplexed data ាប់ប្រព្រះ្ធ ស្ថិត្ត **channel.** អស់ស្គាន់ សិទ្ធិ ១៩០ ព្រះប្រប័រស្រ គ. ១០១ The transfer operations specify a Media Control Object whose data signal is used to transport the data. If the remote station is running a VMCS the direction of Media Control Objects signal determines whether the transfer operation sends local data to remote least to gratation (data to remote) or is a request to retrieve data from the remote station (data) 10 gna amia dai remaidin remote) de la compansión de la comp The Media Control Object used for the the bandway and transfer contains data structures and are a variables that describe the actual status of 15 cyes was mean the transfer out patern 00% and crequest at ್ರಾಲ್ಯಾಣಿಕ ಜರ್ಚರ ಅವರ ಇದೆ ಇದ್ದು ಪ್ರತಿ ಸಂಪರ್ಕಾಣಕ್ಕೆ ಬಿಡುಕ್ಕೆ ಬಿಡುಕ್ಕ SYSTEM INFORMATION was said to be terminated and to Access to system information is highly restricted, from the view of the client, and is only available through SCI members. These members handle a wide variety 20 of VCO states and parameters and provide that (3500) 4" information to the client in divers formats: Janifamou A number of VCO states and conditions are reported by SCI members returning boolean results. These boolean test members allow clients to determine if the VCO is ready to make a call, if a call is currently being setup, if a call is connected, if a multipoint call is in progress, if the remote station is a VCO (running a VMCS), or if the current VCO exists in more than one instance. • References to copies of data structures, stored internally in the VCO are returned for those specific categories of information relating to devices, configuration, call,

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one member returns a reference to a copy of
the entire VCO system information data

• The internal data structure of a Media

Control Object can be accessed in a way

similar to other data structure, with the

client specifying the default Media Control

Object type, or a handle to one. Also, the

10 or make handle for a Media Control Object can be

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Text hands for most enumerations, constants, and hands of the retrieved from the standard of the retrieved from the standard of the standard of them.

audio and dena podes, while retaining the

PROTOCOL MANAGEMENT

structure of the VCO's multimedia connectivity services,

20 and from the standpoint of the client, is mostly
transparent to its functionality. An exception lies in
the VCO support for the manipulation of device modes and
capabilities; it is useful for the client to affect the
system's capability list, as well as the set device modes

25 directly. Moreover, such access allows more knowledgeable
clients to perform advanced, or less well supported
operations at a low-level.

PROTOCOLPARAM, provides the client with information about the H.221 multimedia connectivity protocol. A full accounting as to the progressions of which, is provisioned by this useful data structure, specifically with regards to current and pending device

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modes for audio video data, and miscellaneous operations.

The SetConfProfile command enables the client to specify a conference profile that describes a preferred set of audio, video, and data modalities (relative to the available bandwidth of the connection) that define the overall guality of the connectivity session of maker

The SetModes command enables the client to 1. Level compact specify one, or more, He221-device modes by presenting them to the connectivity subsystem. This command ais sused in conjunction and over home with the VerifyBandwidth command to determine unad now in if there is sufficient bandwidth available in the connection to support a specified set of audio and data modes, while retaining the current video mode. TENDER DECEMBER TO THE

> transmit its entire H. 221 capability list to the remote station who do not and and and are as The SetDeviceTimeout enables the object to: specify the number of milliseconds the second Network Interface Unit should wait for and response from a network request before timing out, whereas the SetConnectionTimeout enables: the client to specify the number of summer is milliseconds the system should wait for a deconnection to a remote station to complete prior to timing out the total order

> > war der ie ee dearing.

40 miles (100 miles) VCO CONTROL OPERATIONS CONTROL VETTILITIES CONTROL

A large group of operations enables the client application to adjust, control, and invoke, special features of the VCO. Some of these operations enable the

The SendCaps command enables the client to

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manipulation of internal veo Settings that are typically left to their default settings for most sessions. A number of commands are sused by a client to attach to a remote VCO for the purposes of remote control and/or 5 remote monitoring of these sections.

The Enablevoo command is used by the client to alter the state of the vco's "enable" flag, astask usually reserved for recovery from an exception that previously disabled it. The secveous depthode is used to set the exact modality used by the vco to handle passes a coexception space of suggests on the

- The SetvoiraceMode command is used to instruct the veo as to exactly which operations and components should be configured to direct trace information to the
- The EnableMulticalions command is a simple switch that is used to select the client's accessibility to the multipoint control operations. To disable these operations causes them to return "disabled" to the
- The EnableDispatcher command is used by

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 Clients to pause the dispatching of events

 O'Clients to pause the dispatching of events

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 is operation is

 VCO, while allowing underlying devices to

 function as best as they may. The related

 command SetDispatcherRate enables the client

 to change that rate at which events are

 dispatched from the VCO event queue, a task

 usually performed when a faster or slower

 event stream is required by the client

 application; faster dispatching rates allow

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the client to eperate at speeds closer to those of the sencepsulated multimedia on at home connectivity vsubssystem. at that to the The UpdateCapsList command is used by the client to add or remove a device capability to the VCO device sapability list, a version of which is transmitted to the remote station during the connection process. A related command, UpdateModeCapsXRef, allows the 10 production and to madd or remove a mode-capability sibvan as crossareference recordathat is used when the VCO attempts to establish common operating or bear modes with its wengte station peer. The EmuControl command enables the client to access an internal Vencenulation facility. 15 Reatures include enabling/disabling the VCO device emulation mode, and invoking predefined emulation sequences. • The AttachToRemote command, is used by the client to provoke the VCO to attach to its 20 remote station peer, if that peer is a VCO (running a VMCS). The DetachFromRemote command eliminates any attachment between interconnected VCO peer stations. When the VCO is attached, the SetycoControlMode 25 command is used to select the master, slave, or peer modality of operation for the local station, with respect to the remote station. • The SetVCOMonitorMode command enables the 30 client to select the event stream for the VCO. to process. Events from the local station, an attached station a group of stations, or some combination of station are directed into its event queue for subsequent, dispatching.

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The SetStationLabel command is used to assign a text label to the local station so that it may be referenced (locally or by a remote station) by that name.

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5 SAMPLE CLIENT APPLICATION

Source code in this disclosure (see section entitled Sample VCO Client Application in Appendix) illustrates the use of Veo services by a multithreaded, event-driven VCO Client application. This simple program 10 does not utilize a graphical user interface, but directs lts output to the standard output, console. The program and the control of th required audio, video, and data modes, and opens above connectivity session if it does. Source code is also 15 provided for the many header files used by both the VCO Clients and the VCO itself persons a person car eat eath reported and a little state of the little state o Internation the runs be 1 stores 44

লোকু লিক্তানতে তেখা সাম ককাল চৰক্তান্তৰ সাধা সংগীত The invention is meant to cover all of the abovementioned alternative approaches as well as others not specifically mentioned. The above-mentioned embodiments rati, po ಯಾಕ್ಷಕ್ರಾವರ್ ನ್ಯಾಗ್ರಹ್ಮ ನೀಡಿ ಪ್ರಾಯ ಕರ್ಮ 20 and others are within the following claims.

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VDI HEADER FILE

This source module contains definitions for the principle software enumerations, constants, data structures, and member functions that comprise the Virtual Device Interface (VDI) software component of a Virtual Connection Object (VCO). These terms must be incorporated into both the client and terver entities of any VMCS implementation, in some form of computer language representation. The device interface components are internal (annipublic) to the VCO, and are of the pure virtual type? All other member functions, structured, and constants shown below are used by every VCO to enable structured access to their encapsulated multimedia connectivity sub-system, and by VCO Clients desirous of structured access to a device-independent representation of the same. These member functions and shearbel data objects are collectively referred to as the Software Control Interface; they are the same for every VCO implementation, thus enabling creation of device-independent connectivity applications that exploits their

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- 2. The term unknown refers to a value, condition, or requested operation that can not be identified; that is the usage of this word connotes a patently errant condition.
- 3. The term unexpected refers to a value, condition, or requested operation that is identifiable, but is trappropriate given the current set of preconditions; that is the usage of this word connotes trappropriateness of context.
 - 4. The term exception refers to an occurrence of a severity that warrants abandonment of the connectivity sub-system (a fatal error); such an occurrence connotes significant destabilization of the VCO has occurred and further usage risks a system crash
- 3520 5. The term blocking describes calls that want for the requested operation to fully complete, the return value of which indicates its results. This modality of operation is the default for all calls. If there is a "IsBlocking" argument to the call, and it is set to 0 (false), then the call returns immediately without waiting for the operation to complete, typically returning "pending" if he request is valid. Indication as to the result of this operation comes from the insertion of a descriptive event into the VCO event queue upon its completion.
 - 6. All character pointers (char*) point to null-terminated ASCII strings of a length less than 256 characters, including the mill.
 - 7. The term tabel refers to a string as defined in (6.) above, except that it may not contain spaces and its length is less than 32 characters, including the mill.

ARGUMENT SYNTAX for VIRTUAL CONNECTION OBJECT EVENTS

Notification of the occurrence of a standard Virtual Connection Object event is initiated when a notification object in the host VCO "triggers", and subsequently calls a specific event handling function residing in a designated Notification Receiver Object (NRO); that is, a software object that contains member functions implemented specifically to respond appropriately to that type of system event.

3540 EVENT IDENTIFIER PARAMETER 1 PARAMETER 2 NullEvent Don't care Don't care NewEmuState True if emulation enabled Dog't care NewEmuOp < EMULATIONOP > Don't care 3545 NewRefCount Previous reference count New reference count New Device State < DEVICESTATE > Device index NewMcoFocus < MCO TYPE > Ptr to media ciri obi label **NewLocalCape** Previous number capabilities New number capabilines

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                                                                                                                                                                   Previous number capabilities. New number capabilities
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                                         NewRevMode
                                         NewXmtMode.
                                        NewReiMode |
                                        NewAudioSetting
                                        NewVideoSetting
                                        New ImageSetting
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                                        NewDataSetting
NewCallState
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CLINESTATE > Don't care
                                        NewLine1State Chin
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                                        NewLine2State
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Don't care
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                                                                                                                                                                    < CONFPROFILE >
                                        New Disc Status
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                                        NewMultiCaliState
                                                                                                                                                                    < MULTICALLSTATE >
                                         NewMultiCallOp
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                                                                                                                                                                                                                                                                                                                                        Don't care
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                                         NewTerminput Number of bytes transmitted
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                                        // BASE DATA TYPES USED IN ALL VCO SOURCE MODULES
                                        typedef unsigned char BYTE: // 8-bit unsigned value (standard octet)
typedef unsigned int
                                        typedef typede
3580
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       DWORD HNOTIFIER: // 32-bit handle used to reference signal objects
                                         typedef
                                                                                                                                                                                                                              // 32-bit handle used to reference media cirl objects
                                         typedef
                                                                                                                           DWORD HMCO:
3585
                                        // IMPLEMENTATION-DEPENDENT CLASSES DEFINED ELSEWHERE
                                                                                                                                                                                                                                                                                                                                                                                                                                 to petropolitical a
                                        ciass XierObject;
                                         3590
                                           32-BIT STANDARD VIRTUAL CONNECTION OBJECT EVENT IDENTIFIERS
                                          Talling of ATT (THE OLD ATT) where is some in the property of 
                                                                                                                                                                                                                                                                                                                                                                                                                  TUBBLE HERRY
                                          EVENT NullEvent
                                                                                                                                                                     = 0x00000000; // NO-OP to event processor 274 Vin. A 3 197
                                                                                                                                                                    = 0x00000001; // New VCO constation state
                                                                                                                                                                                                                                                                                                                                                                                                                    a de de la companya d
3595
                                          EVENT NewEmuState
                                        A TO SERVE
                                                                                                                                                                                                                                                                                                                                                                                                                                    Long the W
 3600
                                                                                                                                                                                                                                                                                                                                                                                                                               State of the
                                                                                                                                                                    = 0x00000100; // New device mode set by local station
= 0x00000200; // Amempt to set device mode rejected
                                           EVENT NewXmiMode
                                          EVENT NewReiMode
                                                                                                                                                                                                                                                                                                                                                                                                                   The second secon
  3605
                                           EVENT NewAudioSetting
                                                                                                                                                                      = 0x00000400; // New seming for audio object
                                           EVENT NewVideoSetting
                                                                                                                                                                    = 0x00000800; // New seming for monon-video object
= 0x00001000; // New seming for imaging object
                                          EVENT New imageSetting = 0x00001000; // New setting tor imaging upper = 0x00002000; // New setting for bitstream object:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          5.
                                          EVENT New DataSetting = 0x00002000; // New call state
 3610
                                           EVENT NewLine IState
                                                                                                                                                                     = 0x00008000; // New line 1 state
                                           EVENT NewLine2State
                                                                                                                                                                       = 0x00010000; // New line 2 state
                                                                                                                                                                       = 0x00020000; // New conference profile for call
                                           EVENT NewConfProfile
                                           EVENT NewDiscStatus
                                                                                                                                                                       = 0x00040000; // New disconnect status from network
                                            EVENT NewMultiCallState
                                                                                                                                                                       = 0x00080000; // New muinpoint call state
   3615
                                                                                                                                                                       = 0x00100000; // New multipoint call operation complete
                                           EVENT NewMultiCallOp
```

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= 0x00200000: // New data transfer state
                                                EVENT NewDataXIerState
                                                                                                                                                                                              = 0x00400000: // New data buffer receive complete
                                                EVENT NewRevBuffer
                                                                                                                                                                                         = 0π00800000; // New data buffer transmission complete
= 0π01000000; // New data object receive complete
                                                EVENT NewXmtBuffer
                                                EVENT NewRevObject
   3620
                                                EVENT NewXmtObject
                                                                                                                                                                                 = 0x02000000; // New data object transmission complete
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          the linear "
                                                EVENT NewVcoState | Of 10 m 0x04000000; // New global VCO hope
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30 24 - 41
                                                EVENT NewCursorPos. 33 1. = 0x08000000; // New cursor position from tempte station
                                                EVENT NewTermOutput =:0x20000000: // New text mestage from VCO (to VCO terminal output port)
                                               EVENT NewResultCode 374= 0x40000000: // New result code from interpreted VCO command
    3625
                                                EVENT Reserved
                                                                                                                                                                                            = 0x80000000: // Reserved implementation-dependent event
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               512 1 1 1
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                                                                                                                                                                                                                                                                                          // Max number encapsulated devices
                                               const int MaxDepices in rule prolife 2 per
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 1988 Burney Co. 1888
                                              const int MaxQbjForDen commedital
                                                                                                                                                                                                                                                                                          // Max mimber media ctri objects per device
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  128 17 18 18
                                                                                                                                                                                                                                                                                   // Max number media cri objects per device
// Mix number of media cri object types
// Max number media cri object types
// Max number media cri object types
// Max number object H. 721 device modes
// Max number object H. 721 device capabilities
// MAX lines menageable by call controller
                                              const int MaxMcoTypege art out alfall
                                              const int MaxXRef 105; 107; 11 ≠ 63 π.9
                                              const int | MaxModes | stand 2-st # of 00?
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                                                                                                                                                                          r. 17: 100
                                              const unt MaxLaneso at eradion = 24 17
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                                                  ENUMERATED CONSTANTS IN UT
                                                    -------
                                                                                                         // VIRTUAL CONNECT OBJECT GLOBAL OPERATIONAL STATES
                                                                                                                                                                              and prate par sale. WIN VCO it tribalized and operational for calling
                                                      VcoOpen,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          127 840
                                                                                                                                                                                                                                     // VCO if not operational: no calls possible // VCO experienced failure, but is suntil operational,
                                                    VcoClosed.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           147.975
                                                     VcoFailed.
                                                    VcoDisabled. WCO has been disabled and as pion operational vcoDisabled and as pion longer operational vcoDisabled and as pion operation vcoDisabled and as pion vcoDisabled and as pion operation vcoDisabled and as pion operation vcoDisabled and as pion operation vcoDisabled and as pion 
                                                                                                                                           The party of the property of the community of the communi
   3650
                                               VCOSTATE:
                                              // EXCEPTION HANDLING MODALITY FLAGS
typedef enum ( SEASON TO A SEASON THE TABLES OF T
                                                    ExceptModeDebug 19722-199 0x01; pt 1007 1 1007 1 True enables output debug info in msg box for exception
   3655
                                                                                                                                                                                                                                                                                        // True enables output "user" info in msg.box for exception ...
                                                     ExceptModeUser = 0x02.
                                                                                                                                                    = 0x02. // True enables output, user 1110 in 1138, out to the control of the cont
                                                    ExceptModeTerm ·
                                                    Except Mode Nonfier = 0x08 - "This enables sending exception into to terminal devices"
                                       ExceptModeAbor = 0x10 // True enables abort of ogs, and disables VCO on exception ...
  3660
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Show has the Con-
                                               If TRACE OUTPUT MODALITY FLAGS arming cosen in 40-40 in 200 (RANK) have
                                                                                                                                                                                                                                                                                                                                                                                                                                                                3145. A. m. TONYS
                                                                                                                                                                                                                         - ONBESTAGE CONTRACTOR RELIGIOUS -
                                               typedef enum (
                                                                                                                                                                                                                            CONTAIN THE Enables III low-level device trace country
                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Committees There's
                                                      TraceModeDevice
                                                                                                                                                                      = 0x01.
                                                                                                                                                                     = 0x02. The chibits notification even trace output

- 0x04. The chibits media cirl object trace output
                                                      TraceModeNotifier
   3665
                                                      TraceModeMCO
                                                                                                                                                                     = 0x08 - 12 201 27/ The enables high-level call control trace output

= 0x10 - 12 21/ 12 21/ 17 The Enables low-level call and line state trace output
                                                     TraceModeCall
                                                      TraceModeLine
                                              TraceModeProto = 0x20... Trace of Trace enable all protocol frace output

TRACEMODE:

// VCO CONTROL MODALITY FLAGS is no rooms to the state of the 
3670
                                                                                                                                                                                                                                                                                                                                                                                                                                                  The second of the second of the second
                                                                                                                                                                                                                     e incorporation of the second of the experience of
                                                typedef enum {
                                                                                                                                                                     CtriModePeer
    3675
                                                      CtrlModeMaster
                                                                                                                                                                      = 0x04, ver consistence of H True Sels local as slave to remote VCO
                                                      CtrlModeStave
                                                ) CONTROLMODE:
                                                                                                                                                                                                                                                                                                  THE RESERVE OF THE PROPERTY OF THE
                                                                                                                                                                                                                                                                                                                                                                                                                                                     ontication agin and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                              Linder Alert 1740
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5.55 J# 97.24

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# YCO MONITOR MODALITY FLAGSHALH TO TO LIFELH TO UTILIZED
                                                                                                                                                                                                                                                                                                          COLUMN TO
3680
                           rypedef emim (
                                                                                                                                                                                                                                                                                                           ryw Public i
                                                                                      Time sets monitoring to include local station
                               MonModeLocal
                                                                                                                                                                                                                                                                                                               รู้ ขอโรกร เ
                               MonModeRemove
                                                                                          and 0x02 parties about the Professor monitoring to include remote station
                                                                                                     = 0x04 there is a second of Time sets monitoring array of stations in conference
                               MonModeArray
                                                                                                  Contraction of the contraction o
                           | MONITORMODE:
                                                                                                                                                                                                                                                                                                               فرفيق أحرب
                                                                                                                        n season to comment
3685
                          II TERMINAL OUTPUT DEVICES FOR ATTACHMENT TO VCO TERMINAL OUTPUT PORT
                                                                                                to one included a desiration for a command output device one of a command output device
                           typedef enum ( a - 3)
                                                                                                                                                                                                                                                                                                       TermODevNorifier
                                                                                                                                                                                                                                                                                                             A-1
                                 TermODevFile : 3 0x02, 2 25 0x02, 3 25 0x02 (File, or file system std device, as terminal output device.
                                                                                                     = 0x04. 975.972 3 37 // System data stream as terminal output device
3690
                                 TermODevStream

    Ox08 Sending to the media ctrl Object as terminal output device to the content of the ctrl object as terminal output device to the ctrl object as terminal output device.
                                 TermODevMCO
                                                                                                      = 0x08
                            TERMODEV:
                                                                                                                                                                                                                                                                                                   ខណៈភាពបើកវិ
                                                                                                  teraces surgeries in the leader of
                            // VCO EMULATION OPERATIONS 40 and the same taggets
                                                                                                                                                                                                                                                                                                     Territoria de Caracteria de Ca
                                                                                                   ier bei ben ben ihre find in bereiten
 3695
                            typedef enum (
                                 and to Wall at the best
                                                                                                                                                                             // Enable VCO call emulation mode
                                 EnableCallEmuMode.
                                                                                                                                                                                                                                                                                              Asset Land Tark State !
                                 SerCallDstStation.
                                                                                                                                                                              // Set remote host as a user-station
                                                                                                                                                                             // Set remote host as an MCU - 1172222
                                                                                                                                                                                                                                                                                                   THE PROPERTY.
                                 SerCallDstMcu.
                                                                                                                                                                             // Emalate (atal VCO Exception (recoverable in this case) wite
  3700
                                 Exception.
                                 Line Disc.
                                                                                                                                                                               // Emulate disc on line 1
                                                                      nesser unt recere unce tot bei it asa W Emulate disc on line 2
                                  Line2Disc.
                                                                                               reflectationers continues a new II Emulate disc on line 1 at random nine (w/in 1 min), was a
                                  RandomLine | Disc.
                                 3705
                                                                                                                                                                                                                                                                                                                  Carlenda . S
                                  Line2Ring, the results of the order of the manual and and and the contract ringing on line 2
                                                                                                                                                                                                                                                                                                          green Luck of T
                                  Line ! Ringback (art treat to, create tod attacked only Emiliate ringback on line !
                                                                                                                                                                                                                                                                                                      Marchaelter and it
                                  Line2Ringback; at the management of the at the after mulate ringback on line 2
                                                                                                                                                                                                                                                                                                           Alexander of
                                  Line (Connects) and and and old ban and a lost to the III Emplate connect on line 1
                                                                                                                                                                                                                                                                                               ्राक्षात्राः वक्षात्रकः है । दक्षाः भ ॥
                                  Line2Connect: 400 00. Add to the to the Large to Break / Emulate connect on line 2
  3710
                                                                                                                                                                                                                                                                                                                         744. E 1.
                                   OneLineIncoming (COCOT SEED CORRESPONDED TO ACREES OF Emulate 1 line incoming call
                                                                                                                                                                                                                                                                                                                          the person
                                  TwoLineIncoming of a control of the state of the Emulate 2 line incoming call OneLineOutgoing:
                                                                                                                                                                                                                                                                                                        Appear of the same of the
                                                                                                                                                                                                                                                                                                             1 1 1 mg 1 mg 1 1
                                   TwoLincOurgoing: Send actions and the original time outgoing call
                                  OneLineOutgoingBusy (1997) and a profession of the first of the outgoing call to busy remote
   3715
                                   TwoLineOutgoingBusy, Search is someone and the season of the control of the contr
                                   OneLineOutgoingRejana water contact Contact and the Emulate 1 line outgoing call that is rejected by remote and
                                   TwoLineOutgoingRej, of the section takes on the W Establishe 2 line outgoing call that is rejected by remote,
                                   TwoLineFullCallThenDiscRest. And a second of the Emplace 2 line call to connect, the disc rest by remote and
                                   TwoLineAudioVideo Assessment and the Computation of Figure 2 line audio-video call TwoLineAudioVideo Assessment and the Computation of Figure 2 line audio-video call TwoLineAudioVideo Assessment and the Computation of Figure 2 line audio-video call TwoLineAudioVideo Assessment and the Computation of Figure 2 line audio-video call
   3720
                                                                                                                                                                                                                                                                                                                   7 . 22 . . 4 .
                                                                                                                                                                                                                                                                                                                   3 48 3 1
                   TwoLineAntitoVideoDati. Statements access assign Emulate 2 line media crit call the CallEmulationOpEnd of anti-older, and matter of the plant.
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                               ) EMULATIONOP: Ma grows that the tell transport winG "
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                                                                      医海绵蛋白性 人名西西西斯 医多种性性 化氯甲基苯甲基酚
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                                                                                                                        CORRECT CARREST
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# MULTIPOINT CONTROL OPERATIONS (ITU-T H.231, ITU-T H.243) (IV-1) + 7 + 90.
                            typedef enum (
                                                                                                                                        Set conference focus to specified station
                                SetConfFocus.
                                 QueryConfFocus.
                                                                                                                                       M. Determine station currently in conference focus
3730
                                                                                                                              Sep conference chairman
                                 QueryContChair.
                                                                                                                                                                                // Determine current conference chairmenf@c/
                                 AddSmoon.
                                                                                                                                                                                // Add station to conference
                                                                                                                     // Remove atagon from conference
// Enable/Disable broadcast of local audio to conferees
                                 RemoveStation.
                                 BroadcastAudio:
3735
                                 BroadcastVideo.
                                                                                                                                                                                 // Emable/Disable broadcast of local video to conferees and a fine
                                                                                                 Charge and Section 1988 to 1980 to 1980
                                                                                                                                                                                // Enable/Disable broadcast of local data to conferees.
                                 BroadcastData.
                                                                                               and introduced the second
                                 GetNumStations.
                                 GetNumStanonis.

GetStanonList:

GetStanonCaps.

GetStanonCaps.

GetStanonCaps.

GetStanonCaps.
                                                                                                                                                                                                                                                                                                     James Call
                                                                                                                                                                                                                                                                                                         Bass with
3740
                                 GetStationAudio.
                                                                                                                                                                                 // Get audio from particular conferee
                                 GetStation Video.
                                                                                                                                                                                 // Get video from particular Conference Company of the Conference 
                                 GetStationData.
                                                                                                                                                                                                                                                                                                                       part framer
                                                                                                                                                                                // Get data from particular conferee
                                                                                                  the a prosess of as Cost of Cost numbers and (if possible) label for more standard see
                                 GetStatoonlidentry.
3745
                                 MedaCallOpEnd
                                                                                                                                                                                                                                                                                           Lat Americal Contact
                                                                                                    PERSON VIOLENCE CONTRACTOR
                             MULTICALLOP:
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                            " VCO UNIVERSAL RESULT CODES to Read months the 1
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                             typodd inter the property accuse the ON last remain to
                                                                                                                                                                                                                                                                                                                             and land
                                                                                                                                                                                                                                                                                                                                                                           : 4
                                                                                                                                   Operation failed for some unspecified reason
3750
                                              Service Said will Operation failed for some unspecified reason. At Claim is service and service said of the service service said of the service servic
                                             m.
                                                                                                                                                                                                                                                                                                                                                                             : .
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3755
                                                                                                                     That to All almost and Operation is not yet implemented, but is forthcoming
                                                                                                                        I their to remains will Operation is not supported by this implementation. I mill
                                                                                                                         Operation depends on process that has been terminated
                                                   u i era
                                                                                                                  the principal and the property of requested operation/configuration of principal and the principal and
                                                                                                                 production and system not capable of requested operation/configuration

"Specified object must be opened prior to operation, and
3760
                                                                                                                   // Specified object must be closed prior to operation, are the
                                                                                                                        a grounder at 1
                                                                                                                                                                                 // Specified function disabled to prevent further system corruption
                                                                                                                   442 300 12 4 301 1 C
                                                                                                                                                                               "Specified object resource is in use by another process to /
                                  عطاما
                                                                                                             a in Argares in.
                                  Oueue Estatey
3765
                                                                                                                                                                                  Queue is empry (no removable objects available) ( 331-1001-
                                                                                                 a ka lat mmom a ma 1
                                                                                                                                                                         (Memory could not be allocated to support upgranon: _0*
                                  Overse Full
                                                                                        र इत्तर रहे छ। अप अर्थ अर्थ अर्थ ।
                                   Memory Alloc Error
                                  Resource Allocardor 10 and particular lander and
                                                                                                              Dependent resource could not be allocated upon the could not be allocated upon the could be c
                                  InternalError.
                                                                                                           and deserve how a viction
3770
                                  Timerfadure.
                                                                                                                                                                                   // Could not configure omer to modulate processing
                                                                                                          Ast above entire and thous
                                                                                                                                                                                 // Operation result indeterminate: don/t know what happened
// Specified station has invalid spec, or is-for-some-reason unknown
                                   UndefinedResult.
                                                                                                              THE IN A SEC OF THE PART OF A SEC.
                                   InvalidStation.
                                   InvalidDataType,
                                                                                                                                                                                   // Data specified for arg us of wrong type; such as: multiper i. :
                                   InvalidDeviceRemm.
                                                                                                                                                                                   // Return code from device driver is unexpected or unknown
 3775
                                   InvalidOperation
                                                                                                                                                                                   // Enumerated operation/event is unknown
                                   InvalidOperationNow
                                                                                                                                                                                   // Enumerated operation/event is known, but unexpected at this time
                                   InvalidCapability.
                                                                                                                                                                                   // Specified capability is unexpected or unknown
                                   invalidMode.
                                                                                                                                                                                   // Specified mode is unexpected or unknown
                                   invalidi inc.
                                                                                                                                                                                   // Specified line is unexpected or unknown
  3780
                                   InvalidNonfier.
                                                                                                                                                                                   // Specified nonfier is unknown
                                   InvalidObject,
                                                                                                                                                                                   // Specified object is unknown
                                   InvalidSettme
                                                                                                                                                                                   // Specified setting is unknown for this object
                                   invalidParam.
                                                                                                                                                                                   // Specified parameter is unknown for this seming
                                                                                                                                                                                   // Syntax error in "command" portion of message
                                   CmdSynnaxError.
  3785
                                   AreSyndaxError.
                                                                                                                                                                                   // Syntax error in "arg" portion of message
                                   NotEnoughBandwidth
                                                                                                                                                                                   // Not enough bandwidth for requested operation
                                   CallMustBeConnected
                                                                                                                                                                                   // Operation only possible while connected to remote station
                                   NoCallForLineAdd.
                                                                                                                                                                                   // Attempt to add unknown conferee
                                   LinelsDown.
                                                                                                                                                                                   // Line has disconnected
  3790
                                   LineConnectFailed
                                                                                                                                                                                   // Line connection failed
                                   LineNotConnected.
                                                                                                                                                                                   // Line has not yet fully connected
                                   LinelsBusy.
                                                                                                                                                                                   // Line is busy
                                   DisconnectRequest.
                                                                                                                                                                                   // Line disconnect is requested
```

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1375

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3795
                        // DISCONNECTION RESULT CODES FROM NETWORK LAYER
                                                                                                                                                                                                                                                                              // Disc status indicates undefined condition
                             27
                             DiscStatus O PrefixNotAllowed and palent a declare II-Disc status indicates zero prefix is not allowed and prefix and prefix and prefix and prefix are prefix as not allowed and prefix and prefix are prefix as not allowed as not allowed and prefix are prefix as not allow
                             DiseStatus I PrefixNotAllowed, to an apparatus and M-Dise status indicates one prefix is not allowed
3800
                             DiscStatus | Prefix Required. 19 60% 5000 6000 500 500 Mi Disc status indicates one prefix is required man
                                                                                                    Over 1900 State States indicates one presents sequenced to the state states indicates invalid number of the state states indicates invalid area code of the state states indicates invalid area code of the states states indicates remote line is busy of the states indicates in the states of the states in the state
                             DiscStatusInvalidNumber.
                             DiscSunusinvalidAreaCode.
                             DiscStatusNumberChanged.
                             DiscStatusRemoreBusy.
 3805
                             DiscStatusNoAnswer.
                                                                                                                                                            // Disc status indicates no remote answer
                             DiscStatusCallRejected.
                                                                                                                                                            // Disc status indicates remote represed call
// Disc status indicates remote is unavailable
                             DiscSmusRemoteUnavailable.
                                                                                                                                                                                                                                                                             134 - 202
                                                                                                                                                             // Disc status indicates network error
                             DiscStatusNerworkError.
3810
                                                                                                                             199 per tel. W Disc status endicates call preempted by other call, 200 a 199
                             DiscStatusCallPreempted,
                                                                                                                              W Disc status indicates outgoing calls are barred . A HOLD TOWN
                             DiscStatusOutgoingBarred.
                                                                                                                              vine a second Disc status indicates ancoming calls are barred a tracel raid
                             DiscStatistincomingBarred,
                              DiseStatus Quality Unavailable passes ground was a 1911 Dise status indicates requested quality unavailable, as come
                              DiseStanisComputerRecUnavariable and a second a computer resource unavailable appar
                              DiscStatusHWConfigurationErret: 2015-04 04 04 04 Disc status undicates hardware configuration error (1990)
 3815
                              DiscStatusChanNotidle.
                                                                                                                                                             // Disc status indicates channel not idle
                              DiscStatusChanTypeNotImptem.
                                                                                                                                                             // Disc status indicates channel type not implemented a record
                              DiscStantsFacilityNotSubscribed.
                                                                                                                                                             // Disc status indicates facility not subscribed
                                                                                                                                                             // Disc stants indicates facility not implemented
                              DiscStatusFacilityNotImpiem.
                                                                                                                and second of M. Disc status indicates no root to destination
 3820
                              DiscStatusNoRootToDest.
                              DiscStatusInvalidNumberFormat,
                                                                                                                                 gançona satific Disc status indicates number required
                              DiscStatusNumberRequired.
                                                                                                                                                                                                                                                                                 ्रतामानुबन्धः १८%
                                                                                                                                CONTRACTOR TO THE PARTY
                              ResultCode End
                                                                                                                                     Said Said
                                                                                                                                                                                                                                                                                  1. 1. 84 10. 12.
                           RESULTCODE:
                                                                                                                                                                                                                                                                Supprocessis Pro. 1
                                                                                             Judan Joseph 1932 September 18 Ming 12 Min
 3825
                                                                                                                                                                                                                                                                   teres ar mais for
                                                                                THE YEAR
                             ENUMERATED CALL CONTROL CONSTANTS
                                                                                                                                                                      3830
                           // INDIVIDUAL LINE STATES
                                                                                                                                                                                                                                                                                   200 3 3
                                                                                   Commission of a commission of the control of
                           typedef enum (
                                                                                                                                                                                                                                                                                No. 15 15
                               Line Disconnected,
                                                                                                             Tare to any train all time is disconnected
                                                                                                                                                                                                                                                                                ...25. 1 ...4
                                                                                                                                        aster W Line is dialed
                               LineDialed.
                               LineBusy,
                                                                          production with the some market of If time is busy
                              LineBusy.

  3835
                                                                                                                                                                                                                                                            Mariana de Mesa
                                                                                                                                                                                                                                                            to the state of the
                                                                                                   are size torres because "If Line is connected -
                                LineConnected.
                                LineStateEnd
                            LINESTATE:
   3840
                            // GENERAL CALL STATES
                            typedef emin (
                               CallDisconnected
                                                                                                                                                               // Call is fully disconnected
                                CallConnecting,
                                                                                                                                                                // Call is in the process of connecting
   3845
                                CallConnected
                                                                                                                                                                // Call is fully connected
                                CallStateEnd
                            CALLSTATE:
                            // CALL DESTINATION
   3850
                             typedef enum (
                                 No Destination.
                                                                                                                                                                 // No specific call destination determined
                                 LocalStation.
                                                                                                                                                                 // Call to local station (incoming call)
                                 RemoteStanon
                                                                                                                                                                 // Call to remote station (outgoing call)
                                LocalMCU
                                                                                                                                                                 // Call to local multipoint control unit (incoming call)
   3855
                                                                                                                                                                 // Call to remote station (outgoing call)
                                 RemoteMCU.
                              CALLDST:
```

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TO JULY STOW THE MOPP ESPECIALLY
                     // MULTIPOINT CALL STATE FLAGS
                        lsMultiConnected 0x0001 and a right auG lsmuncted to more than one remote (or MCU) lsConffocus 0x0001
                     typedéf emun (
3860
                       IsConffocus

| SConffocus | Ox00001 | IsConffocus | IsConffo
                   3865
                                                                                                                                                                                                                Carlo Barrella Carlo
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3870
                     // CONFERENCE CONNECTIVITY PROFILE (1942) 3414.3 (Typedef ename)
                   State of the second of the second
3875
                                                                                                                                                                                                                           and the force than the and the
                                                                      V Dus same todum as channel not till
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                     // DATA TRANSFER STATES persents consider sugard steel A typedef enum ( ) or orbits had reduced a second states and o
3880
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                     Distance of the control of the control
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 3885
                                                                                                                                                                                                                                          Sold Cond.
                                                                                                                                                                                                                                        HOND TOWN
                         XferFailure.
                                                                                                                                          // Transfer failed
                         XferNotResponding,
                                                                                                                                          // Transfer process not responding
                                                                                                        // Transfer process internal error.
                         XferinternalError.
                                                                                                                                                              באינו נוגניותה האבר מסארות כני באינון אינים
 3890
                      XFERSTATE:
                      // MEDIA DEVICE CONTROL STATES
                                                                                                                                                                                             a see we not see the see that the see the see the
                                                                                                                                                                                                           ENVIRONDE LA CARTAR
                       typedef enum (
                                                                                                                                                                                                                                   Francis Constitution
                          DeviceOpen.
                                                                                                                                          // Device is initialized and operational
                                                                                                                                                                                                                                           authorite du Total.
                                                                                                                                                                                                                                                                                # . .
                                                                                                            // Device is not operational
 3895
                         DeviceClosed.
                                                                                                            Device failed
                                                                                                                                                                                                                                                       altin of
                          DeviceFailed.
                                                                                                                            Device is already in use and unavailable
                                                                                                                                                                                                                                                           7 8 54
                          DeviceBusy.
                                                                                       A ben 199 6 4 199 3 // Device driver faiture (Media Control Interface failure) 311 -
                          DeviceMCIFailure.
                                                                                    // Device is not responding
                          DeviceNotResponding.
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START CONTINUOUS LINEAR ENUMERATION OF MEDIA CONTROL OBJECT CONTROL TOKENS.
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// MEDIA CONTROL OBJECT SETTINGS
                                       typedef enum (
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                                           // BASE OBJECT SETTINGS
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   3960
                                            NoSeming = XierObjEnd.
                                                                                                                                                                                                                                    // Open object (initialize;and render operational).
                                             Open.
                                                                                                                                                                                                                                   // Close object
                                            Close.
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                                             Enable
                                                                                                                                              Disable.
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    3965
                                             On.
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                                             SetCompositeType.
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                                             // MOTION-VIDEO SETTINGS SUPPLY SUPPLY SETTINGS SETTINGS SUPPLY S
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                                             UnastrenWindow.
                                                                                                                                                                                                                                     // Resize (refresh and realign)monon-video windows $100 Case $
                                             ResizeWindow,
                                                                                                                                                                                                                                      // Set monon-video stretch mode on
    3980
                                             SetStretchOn.
                                                                                                                                                                                                                                     // Set motion-video stretch mode off
                                             SetStrenchOff
                                                                                                                                                                                                                                     # Set monongyideotimage type TTTMRC ADSTRACT ADVISORS
                                              SetImageType,
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                                              Unfreeze,
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                                              SetProportionalOn.
                                              SetProportionalOff,
SetVideoFrameSize,
SetWideoFrameSize,
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                                              // IMAGE SETTINGS
                                                                                                                                                                                                                                       // Assign imaging display to window (already defined above)
3990
                                           /* AssignWindow.
                                                                                                                                                                                                                                       // Unassign:maging display from: window (already defined above)
                                               UnassignWindow,
                                                                                                                                                                                                                                       // Resize (refresh/realign) imaging window (already-defined-above)
                                               Resize Window.
                                              SetStretchOn.

SetStretchOn.

SetStretchOff.

SetJimaging stretch mode on (already defined above). The setJimaging stretch mode off (already defined above). The setJimaging stretch mode off (already defined above). The setJimaging image type (already defined above). The setJimaging image type (already defined above). SetJimaging image metric type

SetJimaging image metric type

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                                                SetPixelDepth.
      4000
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                                                SetPhysical Width,
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                                                SetHorzPtrysicalOrigin,
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                                                SetVertPhysicalOrigin.
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                                                  SetHorzPixelDensity,
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                                                  SetVertPixelDensity.
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// Set image combine type
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                                                   SetImageCombineType,
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         4010
                                                  // AUDIO SETTINGS
                                                                                                                                                                                                                                         // Set audio signal quality
                                                   SetAudioQuality.
                                                                                                                                                                                                                                         // Turn on lip-synchronization of audio signal to video signal
                                                   LipSyncbOn.
                                                   LipSynchOff.
                                                                                                                                                                                                                                         // Turn off lip-synchronization of audio signal to video signal
                                                  EchoCanceiOn.
                                                                                                                                                                                                                                         // Turn echo cancellation on
         4015
                                                                                                                                                                                                                                         // Turn echo cancellation off
                                                   EchoCancelOff
                                                                                                                                                                                                                                         // Set dial tone modulation frequency pulse duration
                                                  SetDTMFDuration.
                                                   LocalDTMFPulse,
                                                                                                                                                                                                                                         // Pulse DTMF at local station
                                                                                                                                                                                                                                         // Pulse DTMF at remote station
                                                   RemoteDTMFPulse.
         4020
                                                  // DATA SETTINGS
                                                                                                                                                                                                                                         // Set data transfer rate
                                                   SetDataRate.
                                                                                                                                                                                                                                          // Set synchronous data transfer mode
                                                   SetSyncXlerMode,
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// Set asynchronous data transfer mode
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                         SetUnrestrictedMode.
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                       // IMAGE METRICS
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                           inchMetrics = imageTypeEnd.
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                           CenniMetrics.
                                                                                                                                    // Set "millimeter" as prumary measure
                           MilliMetrics.
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                           MicroMetrics.
                        ) DMAGEMETRIC SEPREMUERA HE CHEMEN ENRICH SOF DERUN BULAY MEXON COM CELLANTERAL
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                        // IMAGE-ON-IMAGE COMBINE TYPES
                         rypedef enum (
                                                                                                                                        // Overlay destination with source
                            Overlay = ImageMemcEnd.
                           Replace ocsumation with source
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   4050
                                                 Overlay designation with temporary outline of source
                            OutLine"
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                            BitwiseOR.
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(I Combine destination and source with birwise AND

(I Combine destination and source with birwise AND

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(I Combine destination and source with birwise AND)
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El mara de centra de Catamera.
                          IMAGECOMBTYPE:
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                          // MOTION-VIDEO FRAME SIZES (ITU-T-H.261)
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                             NoVideo = ImageCombineTypeEnd
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                             QuarterCIF.
                                                                                                                                          // Full-size Common Intermediate Format video image
                              FullCIF.
                                                                                                                                          // Common intermediate Format video image with 240 scanines
                             CIF240.
                                                                                                                                          // Four-times Common Intermediate Format video image
     4065
                              4CIF.
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                              VideoSizeEnd
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VoiceHigh, 200 to 
                               VoiceHigh.
                                                                                                   in the second of the Music quality signal (usually 22khz sample rate)
                               Music.
                                                                                                                                           // High fidelity quality signal (usually 44khz sample rate)
      4075
                                HighFidelity.
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                                AudioQuality End
                             AUDIOQUALITY:
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                         # DATA TRANSFER RATES (pr. 1975) (1975) (1975) (1975) (1975) (1975)
                             pedef enum (
DataRateNone = AudioQualityEnd. // No data transfer
                          typedef enum (
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                                                                                                                                                                      // 300 baud transfer rate
                              DataRate300.
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                              DataRate 1200.
                                                                                                                                                                      // 4800 baud transfer rate
                              DataRate4800.
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                              DataRate9600
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4085
                              DamRate 14Kb.
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इत्यासम्बद्धाः सम्बद्धाः
                                                                                                                                        11 AT 15 // 128 kilobaud transfer rate
                              DataRate 128Kb.
                                                                                                                                                                       // 192 kilobaud transfer rate
                                                                                                                                                                                                                                                                                                        भाग । प्राथा
                              DataRate192Kb.
4090
                              DataRate256Kb.
                                                                                                                                                                       // 256 kilobaud transfer rate
                                                                                                                                                                                                                                                                                                    THE STATE OF A MANAGE
                              DataRate320Kb.
                                                                                                                                                                       // 320 kitobaud transfer rate
                              DataRate384Kb.
                                                                                                                                                                       // 384 kilobaud transfer rate
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                              DamRate512Kb.
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                              DataRate 1152Kb.
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                              DataRate 1536Kb.
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                               DWORD
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                                                                                   Parami:
                               DWORD
                                                                                   Param2:
                                                                                                                                                                        // 32-bit evens parameter 2
                               STATION*
                                                                                  pStation:
                                                                                                                                                                        // Per to source station gray of the Sale of CHOCK to the
                               BOOL
                                                                                   LiFromDevice:
                                                                                                                                                                        // True if event generated by encapsulated device , main harast a
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                                                                                                                                                 (Par to previous event in queue or list "School Depart " 1200 a 1
                               ugEVENTREC*
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                            // STRUCTURE FOR STATION DESCRIPTOR
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                            ) NOITATZ<del>ga isut</del>iz
                               DWORD
                                                                                                                                                                          // System identifier/index used to refer to this station, NEWA .
                               chare pNumber[3]: [Array of purs to numbers of remote station and VCO and the station and VCO and the station in list power and present agrantions.] Type of remote station is determined to be a VCO and the station agrantion. [Array of pursuance agrantion of the station of the
                                                                                    plabel:
                                chare
                                                                                                                                                                         / Per to station label
                                                                                                                                                                                                                                                                                                         Felix : mac 3
  4125
                            1:
                                                 and the state of t
  4130
                                                                                                                                                                                                                                                                                                     CAMPAGE STATE
                            typedef tagSTATION STATION:
                                                                                                                                                                                                                                                                                          Y 73.24 101 573.5 5
                            // DEFINITION OF EVENT HANDLING MEMBER FUNCTION
                             rypodef DWORD EVENTPROC(
   4135
                                 EVENT
                                                                                                     id.
                                                                                                                                                                          // 32-bit event identifier
                                 DWORD
                                                                                                       Parami.
                                                                                                                                                                          // 32-bit event parameter 1
                                 DWORD
                                                                                                     Param2.
                                                                                                                                                                          // 32-bit event parameter 2
                                  *NOTTATE
                                                                                                      pStation.
                                                                                                                                                                          // Ptr to descriptor for station originating event
                                 HNOTIFIER.
                                                                                                                                                                          // Handle to notification object triggered by event
                                                                                                      hNotifier
   4140
```

U1:

```
# STRUCTURE FOR VCO NOTIFIER-DESCRIPTOR (1973/1973/1974)
                                                                                                                                                                                                                                                                                                                                                                                                                                               typedef struct (
                                            DWORD
                                                                                                                                               Triggers: on bearques the sall Mask specifying events that trigger this notifier
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                ٠...
                                                                                                                                              pObject; w assembly well a Wifer to Nonfier Receiver Object (NRO)
                                             voxd*
                                                                                                                                               pMembergar of to magain MaPtr to notifier handler member of NRO
4145
                                             EVENTPROC•
                                                                                                                                               IsEnabled a month rushing HiTrue if nonfier is enabled to ingger
                                             TOOR
                                                                                                                                               Only Degice Events in the in True if nonfier triggers only for device events on a man
                                             BOOL.
                                                                                                                                                                                                       and the Number of times notifier triggered since last reset
                                            iong
DWORD
                                                                                                                                               nTriggered:
                                                                                                                                               RenumData: Server 917 Data returned by notification handler member of NRO
                                                                                                                                                                                      warm tire dalling a
4150
                                        NOTIFIER:
                                                                                                                                                                                                                                                                                                                                                   namitis :
                                                                                                                                                                                                             When as 3 mars, it
                                                                                                                                                                                                                                                                                                                                                 Brokense S
                                        // STRUCTURE FOR RED-GREEN-BLUE COLOR SPECIFICATION
                                                                                                                                                                                                                                                                                                                                                     , smorths and
                                        typodef struct (
                                                                                                                                                                                                           ्राच्याच्या वर्षा वर्षा
                                                                                                                                                                        many and is resummitted color component Man 20.2
                                             BYTE
                                                                                                                                               Green: High work is vicios/II Green color component least book Blue; a such as the support Blue color component least book reserved least a support by support as a support by support as the support 
4155
                                             BYTE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ٠. ;
                                              BYTE
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                                              BYTE
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                                        ) RGBVALUE:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         21:0
                                                                                                                                                                                                    nich as truckod admire o
                                                                                                                                                                                                                                                                                                       Ησην Σηγανικί Ο πημεί
V επιθηγησεί Ο πραί,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         37.0
                                        // STRUCITIRE FOR DEVICE DESCRIPTOR TOWARD A SERVER A
                                                                                                                                                                 these mained grantes extent to
                                         typedef struct (
                                                                                                                                                 State: A control bergund/State of physical device Westerning
                                             DEVICESTATE
                                                                                                                                                                                                                                                       // Pur to label for physical device
                                             chare
                                                                                                                                                 olabel:
                                             char*
                                                                                                                                                pVersion:
                                                                                                                                                                                                                                                   // Pir to version string for physical device
4165
                                                                                                                                                                                                         Number of media cit! objects associated with physical device.
                                              ını
                                                                                                                                                 nObjects:
                                             HMCO
                                                                                                                                                                                                                                             // Ptr to array of handles for media ctri objs associated with device
                                                                                                                                                 phMCO:
                                                                                                                                                                   ers = e u colo com mais di mer T ...
A Ten e transport e e company
                                          DEVICE:
                                                                                                                                                राज्यसम्बद्धाः च व प्रविश
                                                                                                                                                                                                                                                                                                                                                                                                                                                                             134.4
                                                                                                                                                                                                                                                                                                                                           1. 7. 122. 466
                                        // STRUCTURE FOR MEDIA CONTROL OBJECT: AUDIO PARAMETERS IN HOTO 22 Typedef struct (AUDIOQUALITY) Control of the control of the
                                                                                                                                                                                                                                                                                                                                                                                                                                                 The second second
4170
                                                                                                                                                                                                                                                       // True if audio lip-synchronized with video signal
                                               BOOL
                                                                                                                                                 IsLipSynched:
                                               HMCO
                                                                                                                                                                                                                                                        hVadeoObj;
                                                                                                                                                                                                                                           The True if echo cancellation is enabled
                                               BOOL
                                                                                                                                                  IsEchoCancelOn:
 4175
                                                                                                                                                 DTMFDuration;
                                                                                                                                                                                                                                                     // Dial Tone Modulation Frequency duration in msec
                                                                                                                                                           magna near the electric bedan on the V
                                          MCO AUDIOPARAM:
                                                                                                                                                                                                                                                                                                                                                                 Sec. 11.
                                                                                                                                                                                                    े क्षत्रिक स्था स्मृति हाल
                                                                                                                                                                                                                                                                                                                                                                                                                                         प्रशासिक विकास
इस्टीकी
                                          // STRUCTURE FOR MEDIA CONTROL OBJECT MOTION-VIDEO PARAMETERS
                                          rypedef struct (manta a menta times of anic virtuality of mental
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. 3
                                                                                                                                                  LAssigned To Wings about True if obj assigned to window
   4180
                                               BOOL
                                               BOOL
                                                                                                                                                  LaWinUpdated to the start of True if window aligned with source video image
                                                                             LiFrozogi, and an amount True if motion-video is frozogi.
                                               BOOL.
                                               BOOL
                                               BOOL

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   4185
                                                 VIDEOSIZE
                                                                                                                     and a magnetic model of the deviation which frame size of a magnetic model of the size of 
                                          MCO_VIDEOPARAM: project u = 10 period presentation (1919 V)

-social project allocations the presentation of the project (1919 V)
                                                                                                                                                                                                                                                                                                                                                                                                               ्यात्र सम्बद्धः । सम्बद्धाः व व व्यवस्थान्त्रः स्थानितः ।
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General Committee Constitution

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4190
                        # STRUCTURE FOR MEDIA CONTROL OBJECT IMAGING PARAMETERS
                         typedef struct (
                           BOOL
                                                                                      Is Assigned To Win: July Erue if objet assigned to window
                                                        2 17 35 74
                           BOOL
                                                                          Is Win Updated 300 2 1/6/Tester If window aligned with source video image
                           BOOL
                                                                                     IsFrozen: Wan to man to Frence if imaging is frozen 200
                                                                            IsProportional: // Time if imaging proportional mode is on
4195
                           BOOL
                           BOOI.
                                                                                      IsSurenched: // True if imaging strench mode is on
                                                                                     Basic Type: // Basic smage type
CombType: // Image combine type
ImageMetric: // Image primary measure
                           IMAGETYPE 🐣
                            MAGECOMBTYPE
                                                                                                                                                                                                                                                                        armining.
                           IMAGEMETRIC*
 4200
                                                                                      PixelWidth:
                                                                                                                                                   // Image pixel width
                                                                                                                                 Himage buiel height
                           in
                                                                                      PixelHeight;
                                                                                                                                                                                                                                                                          PixelDepth;
                           ını
                                                                                                                                                 // Image pixel depth
                                                                                      HorzPixelOrigin (2010) 4:3//1/Image honzontal pixel origin
                           int
                                                                                                                                                                                                                                                                                     VertPixelOrigin; and to the state of the sta
                           INI
4205
                           IN
                           ını
                                                                                      Physical Width:
                                                                                                                                                    // Image physical width ...
                           int
                                                                                      PhysicalHeight:
                           ins
                                                                                                                                                   // Image physical height
                                                                                                                                                   # Image horizontil physical origin WEG 803 350 TDU 17.
                           in
                                                                                      HorzPhysicalOrigin;
                                                                                                                                                                                                                                                                    g gener helped
4210
                                                                                                                                                   // image vertical physical origin
                           int
                                                                                      VertPhysicalOrigin:
                                                                                                                                                                                                                                                               pDisplayWingwah intervol. If Por to assigned display window
                           Windows
                                                                                                                                                                                                                   3 4.22
                                                                                                                                                                                                                                                                                        41. 20.
                        ) MCO EMAGEPARAM;
                                                                                             WPT to late; for maystest device
                       // STRUCTURE FOR MEDIA CONTROL OBJECT, DATA-PARAMETERS
                                                                                                                                                                                                                   Access of
                                                                                                                                                                                                                                                                                             11.
                                                                                                                                                                                                                   ware title
                                                                                                                                                                                                                                                                                     30 99.
                       " Drive
4215
                                                                                                                                                                                                                                                                             37 17.
                   BOOL"
                                                                                                                                 // True if data transfer is synchronous
                           BOOL
                                                                                     IsResponded:
                                                                                                                                                 // True if bandwidth is restricted
                                                                                     BOOL.
                           DATARATE
                                                                                     CompositeRate: House Chan !! Composite transfer rate (if part of composite) have #20 ......
4220
                                                                                                                                                                                                                                                                                    SOC P
                        MCO_DATAPARAM:
                                                                                    district commences on the commence of the commence of the
                                                                                                                                                                                                              reCoansida
                        "STRUCTURE FOR MEDIA CONTROL OBJECT DESCRIPTOR
                                                                                                                                                                                                   mada unal cutt. Let
                        typedel struct tagMCO [
                                                                                                                                                                                                    anagrafic 13
                                                                                     platel: // Pur to tabel for media cut object / Plate to tabel for medi
4225
                           chare
                           MCO_TYPE
                                                                                     ObjType;
                                                                                                                                                   // Media ctrl object type
                                                                                     MCO_SIGTYPE
                                                                                                                                                // True if media ctrl object is valid service or place holder
                           BOOL
                                                                                     IsOpen: //.True if media curi object open
                           BOOL
                                                                                                                                                                                                                                                                                        :6~.
4230
                           BOOL
                           BOOL
                                                                                     Isome and the second of the se
                           BOOL
                                                                                     Is Composite: A True if media curi object at part of composite
                           BOOL.
                                                                                     IsBusy: // True if media cut object in pury (timvailable)
                                                                                    isBusy:
                           BOOI.
                                                                                                                                                                                                                                                                          สู่นาโลจิก
การเลย
4235
                                                                                                              21. 1 Re 1 1/20. . 4. True if signal is encode or compressed; false if not
                           BOOL
                           MCO_IMAGEPARAM Image;
                                                                                                                                                   // image parameter block (if image type)
                           MCO_DATAPARAM
                                                                                     Dam;
                                                                                                                                                    // Data parameter block (if data type)
4240
                           DEVICE.
                                                                                     pDevice;
                                                                                                                                                    // Per to struct for device with which media curt object is associated
                        MCOPARAM:
                        // STRUCTURE FOR MEDIA CONTROL OBJECT BINDING RECORD
                        SITUES BEAMCO_BINDING (
4245
                           BOOL /
                                                                                     IsComposite;
                                                                                                                                                    // True if binding is to produce composite signal
                           int
                                                                                      aSre:
                                                                                                                                                    // Number of source media ctrl objects
                           in
                                                                                      nDst:
                                                                                                                                                    // Number of destination media ctrl objects
                           нмсо
                                                                                     phMcoSrc;
                                                                                                                                                    // Ptr to list of handles for source media ctrl objects
                           HMCO
                                                                                     phMcoDst;
                                                                                                                                                    // Per to list of handles for desunation media ctrl object
4250
                           EMCO BINDING
                                                                                     nNext:
                                                                                                                                                    // Ptr to next binding record
                           EMCO BINDING.
                                                                                                                                                    // Ptr to prev binding record
                                                                                      pPrev:
```

typedef mgMCO_BINDING MCO_BINDING:

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// STRUCTURE FOR MEDIA CONTROL OBJECT COMMAND RECORD typedef struct {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         1. 4,732 - C1.77\
4255
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 T. A. Ta. . . .
                                                                                                                                                                                                                                                                                 (Lift keep for engine 2.19)
                                                               typedef struct {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 P WICHT "
                                                                        MCO_TYPE
                                                                                                                                                                                                                                Type:
                                                                                                                                                                                                                                                                                       whore easternoth Parget media ctri object type"
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 3-- ,--
                                                                                                                                                                                                                                                                                          its (c) could beining for media cirl object
                                                                         MCO SETTING
                                                                                                                                                                                                                               Setting;
                                                              DWORD Paraming to media cirl MCO_CMD. Solution of the second seco
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        andota III
                                                                                                                                                                            Country to the state of the sta
 4260
                                                            // STRUCTURE FOR MODE-CAPABILITY CROSS-REFERENCE RECORD (TU-TH. 221)
typedef struct (
DWORD

Wather to the programment of the p
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4265
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          100
                                                                                                                                                                                    Fransint . S. for man of fit of the total
                                                               ) XREF:
                                                               // STRUCTURE FOR DEVICE CAPABILITIES LISTING (ITU-T H.221)

Propodef struct (F 1332)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             *****************************
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Math
                                                                                                                                                                 serve a rough arroyalt acomatent to use at and N
nCaps; // Number
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Lace Table :
 4270
                                                                                                                                                                                                                                Cap(MaxCaps)(A) TAS SW Disting of H.221 device capabilities

Cap(MaxCaps)(A) TAS SW Disting of H.221 device capabilities

[A] TAS SWOTH SW DISTING OF H.221 device capabilities

[A] TAS SWOTH S
                                                                           BASCODE
                                                               DEVCAPS:

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// STRUCTURE FOR CAPABILITIES DATA (GILLE HAZZ))

typodef struct
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        4275
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          is forming Conf Assort
                                                                 JCOS
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                                                                           DEVCAPS
    4280
                                                                           ını -
                                                                           uni
                                                                                                                                                                       Modes[MaxModes]: // "Modes to Caps" aref list

Caps to Tutte of High destablished a 100010 AR Telephone Book and apputited as
                                                                           XREF
                                                                                                                                                                                                                                   Caps[MaxCaps];
                                                                                                                                                                                                                                                                                                                                                                                       // "Caps to Modes" aref list
                                                                            XREF
                                                                   1 CAPS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                The second of
    4285
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1008
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   GOUNDAL STATE
                                                                   // STRUCTURE FOR MEDIA CONTROL DEVICE PARAMETERS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Making Visuo.
                                                                   typedef struct (
                                                                                                                                                                                                                                                                                           Cally parranetting a will
                                                                                                                                                                                                                                      Devices: Devices was with Number of encapsulated devices

Dev[MaxDexices]: Dev[MaxDexices]: Dev[MaxDexices]: Dev[MaxDexices]: Dev[MaxDexices]: Dev[MaxDexices]: Devices of the property of the
                                                                              const int
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                                                                              const DEVICE
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4804
                                                                                                                                                                                                                                                                                                            nata many // H.221 capabilities for VCO devices
     4290
                                                                               CAPS
                                                                                                                                                                                                                                      Can:
                                                                                                                                                                                                                                                                                                                   Carry With Mumber of media curl objects currently available a fee
                                                                              int
                                                                                                                                                                                                                                      nMca:
                                                                              int
                                                                                                                                                                                                                                        nAudioObj; to the management of audio objects currently available
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Sec. 12
                                                                                                                                                                                                                                      nVideoObject wester M Number of monon-video Objects
                                                                              101
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        9 89 21.5
                                                                                                                                                                                                                                      nimageObject sees are the Number of image objects nDanaObjects sees are north Number of data objects.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        ্রাস 🖟
                                                                               ini
       4295
                                                                               int
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        122.65
                                                                                                                                                                                                                                      pMcolapel() come to the manager of data objects and object tabels

pMcolapel() come to the manager of the manager of the media cut object tabels

pMcolippings to a manager of the media cut object bundings and object bundings are a second object of the media cut object bundings are a second object of the media cut obj
                                                                               const chare
                                                                               MCO_BINDING
                                                                               HMCO*
                                                                                                                                                                                                                                        phMco: man was structured by to list of handles to all available media cut objects- 2
                                                                                                                                                                                                                                      hMco[MaxMcoType]: at mid Default media cert object handles (reference with type enum)
                                                                               HMCO
                                                                     // STRUCTURE FOR CONFIGURATION AND SELLP PARAMETERS SHOW SOLVED TO STRUCTURE (CONFIGURATION AND SELLP PARAMETERS)
                                                                         DEVICEPARAM
       4300
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      , data Maria se entre
                                                                      BOOL STATE OF THE PURPOSE OF THE PROPERTY OF THE STATE OF THE STATE OF THE PURPOSE OF THE PURPOS
                                                                                 BOOL COURTER OF THE PROPERTY O
          4305
                                                                                 BOOL 1 1010 Meritan of Land American Market 
                                                                               BOOL IS THE EXPERIENCE OF THE PROPERTY OF THE SERVICE BANKWIGHT IS TESTICISED BOOL IN THE SERVICE IS Emulating; // True if VCO starts up emulating devices
                                                                                                                                                                                                                                                                                                                                              // Label and numbers for local station
// Label and numbers for default remote station
                                                                                  NOTTATE
                                                                                                                                                                                                                                         LocalStation:
           4310
                                                                                 STATION
                                                                                                                                                                                                                                           RemoveStation:
                                                                                 chare
                                                                                                                                                                                                                                         TermOutputDevice: // Default terminal output device or file name
                                                                                                                                                                                                                                         Connect Timeouties the self Default connection ameout in mice.
                                                                                  int
                                                                                                                                                                                                    DeviceTimeout
                                                                                  ini
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 a pokulturi († 18.
Zapok programa)
                                                                                                                                                                                                    Disputcher Rate: ( 250 / 2007/ Starting dispatcher rate in misec.
                                                                                                                                                                                                                                           Dispancher Rate: 1 12 22 27 Starting dispancher rate in misec.
Service Bandwidth: 12 22 27 Total service bandwidth available
           4315
                                                                                  int
                                                                                                                                                                                                                2450 nlunes Available; 1500cd Sound Number of lines available
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                40 12 17 X
                                                                                  in
                                                                                  int
                                                                                                                                                                                                                                            nLinesRequested:
                                                                                                                                                                                                                                                                                                                                                                                                    // Number of lines request for use by this VCO
                                                                                                                                                                                                                                                                                                                                                                                                         // colorkey value for motion-video
                                                                                  RGBVALUE
                                                                                                                                                                                                                                            ColorKey:
                                                                                  CONFPROFILE
                                                                                                                                                                                                                                            ConfProfile:
                                                                                                                                                                                                                                                                                                                                                                                                          // Conference profile
             4320
                                                                           ) CONFIGPARAM:
```

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3 TATHUMBER

MAN, FOTTO CO

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```
// STRUCTURE FOR CALL CONTROL PARAMETERS FOR CURRENT CALL
typedef struct (
                            CALLSTATE
                                                                                   State:
                                                                                                                                           // Call state for entire call
   4325
                            CONFPROFILE
                                                                                   ConfProfile: 10 10 30 H. This conference profile
                            CALLDST
                                                                                  CallDst: January Ja Destination for call
                                                                                                                                                                                                          ment i
                            RESULTCODE
                                                                                   DiscStatus; 150 250 Disconnect status (when in disconnected state)
                                                                                                                                           // Total number of lines to be used for this call
                            ROOI
                                                                                  IsRestricted: "True if this call is restricted
IsCallScrupt: 10 Lt 308 W.True if this call is setting up
   4330
                           BOOL.
                           BOOL.
                                                                                                                                                                                                                                                        1.162
                                                                                   IsCalling Vco.
                                                                                                                                       // True if this call destination is another VCO
                           ını
                                                                                  nConnections: 4, day , 10/1 Number of current connections for this call
                                                                                                                                                                                                                                                                         1,14
                                                                                   in
                           ins
                                                                                   Timecon: 2/33/ Andrain Il Call connect timeout used for this call
                                                                                                                                                                                                                                                                      3.18
   4335
                                                                                  TimeSlots:
                           ini
                                                                                                                        // Timeslots used for this call (if applicable)
                           LINESTATE
                                                                                                                // Linestate for each line in call
                                                                                  LineState(3);
                                                                                  nStations:
                           STATION
                                                                                  nStations:
                                                                                                                                          # Per to list of conference stations (first is local)
                                                                                                                                      // Nuraber o
                        ## MULTIPOINT CALL CONTROL PARAMETERS FOR CURRENT CAMPAGE MULTICALLISTATE MultiCallistates: ## Multipoint call states figs.
  4340
                                                                                                                                                                                                                                                        BOX DAME:
                                                                                                                                                                                                                                                       ERESTAT .
                                                                                                                                          // Multipoint call status flags
                           BOOL
                                                                                 IsConfFocus;
                                                                                                                                         // True if station has conference focus
// True if Station is conference chairman
                          BOOL
                                                                                 IsConfChair:
                                                                                                                                       // True if station is receiving conference audio
                          BOOL
                                                                                 IsRevingConfAudio:
                                                                                                                                                                                                                                                        31401FL
  4345
                          BOOL
                                                                                 Is Reving Conf Video: 2011 all True if station is receiving conference video
                                                                                BOOL.
                       BOOL #FEAR STATEGES IN THE RESIDENCE OF STATES OF STATES
                          BOOL.
                                                                                                                                                                                                                                                                           ٠,٠
                                                                                                                                                                                                                                                                           4.
                                                                                                                                                                                                                                                                     511 .º
  4350
                       7:4
                       typedef struct (
                                                                                                                                DET II. True if transmitting audio CO AIG NO 104 SECTO SET
                          BOOL.
                                                                                 IsXmtingAudio;
                                                                                                                                         // True if transmining video
 4355
                                                                                                                                                                                                                                                Carlotte transfer
                          BOOL.
                                                                                 IsXming Video;
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                                                                                IsXmongData; and the True if transmining data is RevingAndion of the Alexandria and the True if transmining data
                          BOOL.
                                                                                                                                                                                                                                                 3 1-24 42
                          BOOI
                         BOOL
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                          BOOL.
                                                                               IsRevingData: 10 10 10 16 True if receiving data
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 4360
                         BASCODE "
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                         BASCODE
                                                                                RevVideoMode: " // Current receive video mode
                                                                                                                                                                                                                                                                            1-
                         BASCODE
                                                                                                                                                                                                                                                                             61
                                                                                RevDataMode: _______/// Current receive data mode 10.000
                         BASCODE
                                                                                XmtDataRate: 10 10 10 11 Current transfer fale
 4365
                         BASCODE
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                                                                               BASCODE . 67
                                                                               XmtVideoMode: /// Current transmit video mode
                         BASCODE
                                                                               XmtDaraMode: Current transmit data mode (2011)
                         BASCODE NewDataRate:
                                                                                                                                      // Pending transfer rate just set (pending XmiDataRate)
                         BASCODE
                                                                               NewAudioMode:
                                                                                                                                      // Pending audio mode just set (pending XmtAudioMode)
 4370
                                                                               NewVideoMode: 3/18 3/1/ Pending video mode just ser (pending XmiVideoMode)
                         BASCODE
                         BASCODE
                                                                               NewDataMode;
                                                                                                                                     // Pending data mode just set (pending XmtDataMode)
                                                                      nMiscXmtMode: /// Number of miscellaneous modes set by local station nMiscRcyMode: /// Number of miscellaneous modes set by remote station
                         in
                         BASCODE"
                                                                               MiscXmtMode[MaxMiscMode]: // List of miscellaneous modes set by local station
                         BASCODE
4375
                                                                              MiscRcvMode[MaxMiscMode]: // List of miscellaneous modes set by local station
                                                                                 The second secon
                      ) PROTOCOLPARAM;
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                      "STRUCTURE FOR REMOTE STATION CONTROL PARAMETERS
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                                                                                                                                                                                                                                                                          . 414
                      typedef struct (
                                                                               Biodisched: // True if cmd and event stream attached to remote VCO
                                                                                                                                                                                 Teti Kummin manna
4380
                         BOOL
                         BOOL
                                                                               IsMaster: // True of controlling remote stabon (master)
                        BOOL.
                                                                              isslave: "True if controlled by remote station (slave)
Modes: "Control mode setting flags

(A. Control mode capability/octmission flags
                        CONTROLMODE
                        CONTROLMODE
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                     CONTROLPARAM:
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"STRUCTURE FOR REMOTE STATION MONITORING PARAMETERS
                                     typedef struct (
                                                                                                         IsAmached 224 hand ... Prof. [humis] True if event stream attached to remote VCO
| Isamached | Isam
                                     II STRUCTURE FOR VCO SYSTEM INFORMATION (VCO PARAMETER BLOCK)
                                                                                                                                                                                                                                                   THESE some IT
                                      rypedef struct (
                                                                                                                                                                              // Pir to VCO label string
            4400
                                          chare
                                                                                                          pVersion:
                                                                                                                                                                              // Per to VCO version string
                                                                                                                                               MOST MAN VCO global operationalisate: ACCE VCO reference count of userboy Page 2000
                                          VCOSTATE
                                                                                                          Smæ:
                                                                                                           RefCount:
                                          in
                                                                                                                                                                              // True if emulating devices
                                          BOOL
                                                                                                          [sEmulating:
                                                                                                          IsReady: 3.15% 00 2.13% Tare, if ready to connect to remote station " o " Device: 3.15% 00 2.13% VCD encapsulated device parameter block
                                          BOOL
            4405
                                          DEVICEPARAM
                                                                                                                                                                               // VCO configuration parameter block
                                          CONFIGPARAM
                                                                                                           Config:
                                          CALLPARAM
                                                                                                                                                                               // VCO current call parameter block
                                                                                                          Call:
                                                                                                                                                                               // VCO protocol parameter block
                                          PROTOCOLPARAM
                                                                                                           Protocol:
                                                                                                                                                                  VCO compol consess parameter block and branch
                                          CONTROLPARAM
                                                                                                            Conzroi:
            4410
                                          MONITORPARAM
                                                                                                                                                                               // VCO monitoring context parameter block
                                                                                                            Monitor:
                                       ) VCOPARAM:
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and the state of the state of

CLASS VDI (Virtual Device Interface) 4415 Other morror Below is the declaration for the VCO Virtual Device Interface Class. An instance of the VDI class must contain, at a minimum, all of the public member functions use by VCO clients to escaphish and control multimedia connectivity sessions with remote stations. This class must also contain an instance of a VCOPARAM data structure, and the pure virtual member declarations for the device control member functions that provide device support to the public member function implimentations. The implementations for these pure virtual functions (demarked with the Dev < label > symbolic naming convention), reside in the Physical Device Interface (class PDI). The constructor, and destructors of this class, are protected members, and their public, interface its via call from 4420 constructor/destructor in the more derived class VCO. 1000 pp. 42 miles 28 miles 20 4425 3 mm - 1 44 class VDI: protected EVENT (. . . gapus Dess OC γ as $x^{\sigma(\gamma)}$ protected: 19 64 g was normer OD e es tre . **TO:**5 anteres in c 777 JUNE 2237.0 // MULTIMEDIA CONNECTION SYSTEM INFORMATION VCOPARAM VcoParam; #0004 30257321 COV 7.14 1111 Car 12 18 4430 JOHN: il Time il singuanti desitte ಭ್ರಭಾರತೀಪ್ರಕ್ಕೆ ಚಿ 1135.5 "INTERNAL DEVICE-INDEPENDENT MEMBERS GO HERE... CONTRACTOR AND succeeding the second parameter blocks. LL CONTROPARIM ეგზათმ il VCO con igure an ratumeter block 1821 W.L. I Read recommend that the must blist to 1224.5 4435 2802 OK OLD MER UNI inacen! TO VOIC prowers a seasonater object MANA 5, 34 7453 virtual constiction? GetGlassName()"(Feiting "VDI";); Busine 3 WALKSSOTTY CO James 27.8 14.1 J. . "C. " NETWORK SESSION CONTROL VDI(char* _pinitFile = 0); 4445 USAGE: Construct the Virtual Device Interface for the VCO. Initialize VCO parameters and settings from the specified initialization file. Setup device-independent data and code objects used by VCO. Create the default VCO device event notifier and start the VCO 4450 PARAM: plnitFile ...Filespec of file that contains VCO startup params & settings. RETURN: none 4455 virtual "VDIO: USAGE: Destruct the Virtual Device interface. Save current settings to the initialization file. Close the various media curl objects, if open. Delete any notifiers and stop the VCO dispatcher. Free all resources allocated by VCO. 4460 PARAM: none RETURN: none 4465 public:

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RESULTCODE Opent BOOL LisBlocking of Listing in Listing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             THE ASSESSMENT
                                                                                                                                                                                                                                                                 and their supporting device control sub-systems. Perform preliminary sub-system diagnostics and determine fevel of system (upenonality.
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4485
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                                                                                                                                                   RESULTCODE Close( BOOL _LsBlocking = 1 );
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     riustBr:Openes
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              banise/3
                                                                                                                                                                                            USAGE: Shutdown the VCO. Stop all services provided by media exclubijects and close
                                                                                                                                                                                                                                                                    their supporting device control sub-systems (Free-giscourcessaliocated for device control.
 4490
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                                                                                                                                                                                          RETURN: Failure
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 4495
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4510 Spring Factor with a company of the company of	chare BOOL Establish musi determined by the as may be accorthis interaction these stations; to	pNumber1 = 0 pNumber2 = 0 pNumber2 = 0 LiBlocking = 1 pNumber2 = 0 LiBlocking = 0 LiBlocking = 1 pNumber2 = 0 LiBlocking = 1 pNumber2 = 0 LiBlocking = 1	ivity session whose quality connectivity services, preference as to the qualities negotiation, between	ity of
4515 PARAM:		Por to string with number for line		
	_pNumber2	Pur to string with number for line	2 (if used).	
4520 RETURN: I	_IsBlocking Failure Success	True if call is blocking, & will no non-blocking & returns immediately	r, return until complete, o y as "pending",	्रास्त्र r false if
4525	Pending TimedOut MustBeOpened	Econo 1 COL Majoricus - 1 jr	- 4	ž Južak.
	Disabled In tis e tasem <i>ed</i> MemoryAllocEi	Somewhater the transport of services are considered that when the services are considered that the services are considered to the services are considered t	HEATT	tului. Tübber
4530	ResourceAllocE	TYPE C	$s_{\mathbf{q}}(\mathbf{x},\mathbf{q}_{j}), \mathbf{r}$	
	InvalidDataType NotEnoughBand		· ···TILS	2°4
4535		ভাগতকণী। ভাগতিকণী		
	~ ·	ेश स्थानिक है स्थानिक कर दार्ग है एक्टर सेन्स्स स्थान की प्रात्तिक कर है स्थान कर स्थान		L. L.

	RESULTC	ODE MuhiCall(STATION*	10 1 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	gatt is	MULTICAL	Param = 0.	
4540		BOOL BOOL	_{- မေးကျင်} ိုးQuery = 0, မေးက (အသည်။) isBlocking = 1);	
	/•		THE PARTY OF THE P	
4545	USAC	function allows a station	by presenting a multipoint control operation request to the while currently connected to multipoint control unit (MCU). This to participate in a conference with more than two conferees, to	,
4,43	•	control a conterence, and	to direct local/common media-cirl to/from conferees.	
	PARA	.M: _Station	Po to station descriptor specifying to which station operation applied to the station operation applied to the station of the station operation applied to the station operation operation applied to the station operation operat	s.
4550	•	_Ор	Multipoint call control operation specifier.	
-		_Param	Parameter for specified operation.	
		_lsQuery	True if call is to query sub-system for operation capability.	
4555		IsBlocking	True if call is blocking & will not return until complete, or false if non-blocking & returns immediately as "pending".	
		MULTIPOINT CALL C	ONTROL OPERATION USAGE & PARAMETERS	
4560	•	< _Op >	< Param >	
4565		GetNumStations GetStationList GetStationCaps GetStationIdentityall other ops	Pur to that to receive count of stations in conf Pur to buffer to hold linked list of STATION records Pur to DEVCAPS record Pur to STATION record to rev id of remote station Don't care	
4570	RETU	JRN: Faiture Success	Doi: Lare	
4370		Pending TimedOut Redundant RequestDenied		
4575		NotSupported MustBeOpened Disabled	•	
		InUse Insernal Error		٠
4580	•	InvalidStation InvalidDataType InvalidOperation		
		InvalidOperationNow InvalidParam CallMustBeConnected		
4585		NoCallForLineAdd		

...<u>:</u> 14 - 4

RESULTCODE Hangupt int _nLine = 0); ANOTHER CAPACIAN CO 4590 instic. USAGE: Hang-up enure call to remote station, or MCU selectively disconnect specified line only. 10034 Number of lines to disconnect: null hangs up all lines. PARAM: _nLine 4595 RETURN: Failure Successing a consumer, generating of the induction are timed. The distribution of the property of the distributions of the property of the prop and least MustBeOpened on a no environment of an entitled in the translation of 31. 1837 2 184 a Disabled and the community factor manufactor of an anisation of the contractor of 15 017 4600 InternalError Per el autori de cantille la pare d'invalighère de la contra el estate del estate de la contra el estate de la con CallMustBeConnected containing new LinelsDown; seed in the part of the Line NorConnected 1,3275 and coppail adution is the new come. 4605 12.30 the series of the ending stop of the series of the series of 23.13 inta n'ali ें दिन में द्वारी के लोटर विवाह के भागि हता कर का ए एक्स के रहता Typicalistic or 41° singulari proportion of galakeeld-con-AUDITERRYT UALL CONTROL TREKATION USAGS & BARRAGETT BE 2º,6 $\mathcal{L}(\mathcal{A}\Omega_{\mu}^{*}) \geq$ र क्षान्स्र ≥ unovers troubban CASE OF THE BEST OF THE PARTY OF THE GOVERNMENT OF recover the second rough, and the TIP's religious but on indian of all equipmondine ्रान्तान हम्राज्याहरू व्याची รามราชาวันเดอเลย ปี ค่า an malippermissaux en la meure dominate al eu-্বার প্রথমের নির องหมา ของน้ำ THE PROPERTY OF 7:245.912 · delmi und einen TELL TURBER Producersi the second debt 100 कारकार्यः । प्रशेषकारे ^१ 22 ...2957 Le Line าศกาลิโมสาการ audaliana ril 35.1 over fore the land anvitedOperance InmilidOptionnal and an armony Calles side Connected ,, .. was and hother

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ATION CONTROL
                   EVENT NOTIFICATION CONTROL
                                                         4610
                  RESULTCODE NewNotifier( HNOTIFIER&
                                                                 hNotifier.
                                                                             1986 S. W. 25 1
                          A WE SHEET I SHEET EVENTPROC
                                                                 _pMember.
                                                                _pObject,
                                             void*
                        Section and a second DWORD TO THE SEC.
                                                                 EventMask = 0);
4615
                       USAGE: Create new notification object in the VCO linked notification object list. The notifier is
                                initially "disabled" following creation, and must be enabled to trigger.
                       PARAM: _hNotifier
                                                       ...Reference to handle for newly created VCO notification object.
4620
                                _pMember
                                                        ...Ptr to notifier receiver member to process VCO events.
                                pObject in the mast increase with a process ved entire to nonfriction receiver object.
      EventMask ....Mask specifying events that will tragget appointer.
4625
                   RETURN: Failure
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                                InternalError
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4635
                                                                        SOUTH BELLINE
                                                                          ารกับอกในแรงกร
                  RESULTCODE DeleteNotifier (HNOTIFIER bNotifier);
                       USAGE: Delete VCO signal and remove it from VCO linked object list.
                      PARAM: hNotifier
                                                       ...Handle to signal to be deleted.
                       RETURN: Failure
                                Success
4645
                                RequestDenied
                                Disabled
                                invalidDataType
                                InvalidNotifier
4650
                  RESULTCODE EnableNotifier( HNOTIFIER _hNotifier,
                                                BOOL
                                                            _lsEnabled = 1);
4655
                       USAGE: Enable or disable signal from inggering on its specified inggering events.
                       PARAM: hSignal
                                                        ... Handle to signal to be enabled or disabled.
                                IsEnabled
                                                        ...True enables signal inggering; false disables inggering.
                       RETURN: Failure
                                Redundant
                                Disabled
4665
                                InvalidDataType
                                InvalidNotifier
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RESULTCODE SetNotifierTriggers HNOTTFER, hNotifier, and and and
                                                                        EventAtash =(0 )political a Tex-
4670
                                                          DWORD
                          USAGE: Set events that will trigger signal
                                                              MARTITONI Institution of the Anti-Handlerpringing whose trigger events will be set.
                          PARAM: _hNotifier = (Table to 18)
                                                110020 700
4675
                                                                            45644
                                    _EvernMask
                                                             ... Mask specifying events that will trigger signal.
                             A DESCRIPTION OF THE CONTRACT OF THE STREET OF THE STREET OF THE STREET OF THE CONTRACT OF T
                          RETURN: Failure
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                                  InvalidDataType
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               grown Color Because in this in navinger reliations of the c
                    RESULTCODE TriggerNottliers EVENTREC.
4685
                                                                      _pEventRec. tang Dig
                                                                          hNotifier = 0);
                                                                                                                                    243.5
                                                                                      saabta oost
                      136 USAGE: Triggers VCO notifiers seniove to the specified event, or atternatively trigger a specific signal.
                                                                                           P. U. Sallure
4690
                          PARAM: _pEventRec
                                                               ... Pur to record communing event parameters.
                                                                                    Astro-Guesans A
                                                               ...If specified, indicates specific signal to be triggered with event, or
                                     hNotifier
                                                               else all noutiers sensione exerciare inggered.
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4695
                          RETURN: Failure
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भारतालाम
                                                                   CONFIGURATION/SETUP CONTROL
4705
                                                                                                                                                                                                                                                                               Long the Markette
                                                                 RESULTCODE SetConfig CONFIGPARAM, pConfig );
                                                                                    USAGE: Set VCO configuration data for main object and encapsulated devices.
4710
                                                                                  PARAM: _pConfig
                                                                                                                                                                                                           ...Pir to record containing new configuration
                                                                                   RETURN: Failure
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                                                                                                                      Success
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                                                               RESULTCODE StoreConfig (CONFIGPARAM® pConfig = 0):

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USAGE: Store VCO configuration to backing store.
4725
                                                                                  PARAMITE COMING TO COMES SUBJECT THE TO SEE A FOR SERVICE TO SERVICE STATE OF THE SERVICE STATE STATE STATE OF THE SERVICE STATE 
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                                                      weather that places that the shipmonth is this hipmontpecified, the current VCO config is stored.
                                                                          & RETURN Filling and the place of and
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 4740
                                                                  RESULTCODE RefreshConfig( CONFIGPARAM* pConfig = 0); self-si
                                                                                                                                                                                                                                                                          To provide great sent
                                                                                    USAGE: Refreshes current VCO configuration or configuration record from that saved in backing store.
                                                                                    PARAM: _pConfig
                                                                                                                                                                                                            ... Pur to record to receive configuration read from backing store. If none,
4745
                                                                                                                                                                                                            specified, current VCO config is refreshed.
                                                                                                                                                                16 To an description of the age of the second control of the
                                                                                    RETURN: Failure
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4755
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RESULTCODE SetupAudioDevices( BOOL _lsBlocking = 1); ....
                         USAGE: Invokes dialog box to enable interactive setting of audio devices.
4760
                         PARAM: _isBlocking
                                                           ...True if call is blocking & will not return until complete: false if
                                                      non-blocking & returns immediately as "pending".
                         RETURN: Failure (1983) (1997) (1997) (1998) (1998) (1998) (1997) (1998)
4765
                                   Success
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                                   Pending grows with a first of William
                                   Redundant
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                                   Memory Alloc Error
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4775
                                   ResourceAllocError
                                  InternalError
                                           POST TEODS Seem with CONTREPARANT SCIENCE = 9
                   RESULTCODE SetupVideoDevices( BOOL_LisBlocking = 1): 20 4 mg. 2.4480
                                                                                                                          47.25
4780
                         USAGE: Invokes dialog box to enable interactive setup of motion-video devices.
                             . For to rearity containing configuration i
                      PARAM: LisBlockingstrup of 113200 Prue if call is blocking & will not return until complete: false if
                                                         non-blocking & remms immediately as pending.
4785
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                         RETURN: Failure
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                                  Success
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4790
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                                   NotSupported
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                                   Process Terminated
                                   MustBeOpened
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4795
                                  InUse . . .
                                  Memory Alloc Error
                                  Resource Alloc Error | 1 | 10 army 1 | 10 | 5 | 1 margia | 1 | 20 mil | 40 | 61 |
                a na h
                                  InternalError
                   RESULTCODE SetuplmageDevices (BOOL_IsBlocking = 1);
                                                                                    wine to second
                   .*/ <sub>0.1.5</sub> pm. . db...$1658.75...
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4800
                                                                                      SETTON HOUSE
                         USAGE: Invokes dialog box to enable interactive setup of image devices.
4805
                                                           ...True if call is blocking & will not return until complete: false if
                         PARAM: _IsBlocking
                                                           non-blocking & returns immediately as 'pending'.
                                                                                 mar ar al
                         RETURN: Failure
                                                                                 SHEED NOT ST
                                   Success
4810
                                   Pending
                                   Redundani
                                  RequestDenied
                                  NotSupported
                                  ProcessTerminated
4815
                                  MustReOpened
                                  Disabled
                                  inUse
                                  MemoryAllocError
                                  ResourceAllocError
4820
                                  InternalError
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RESULTCODE SetupDataDevices(BOOL _LsBiocking = 1);

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4825
                                                                                         USAGE: Invokes dialog box to enable interactive setup of data connectivity and network adapter
                                                                                                                              devices (Network Interface Units), as well as allow configuration of System-I/O ports. Semp
                                                                                        of network protected support software resides here.
                                                                                                                                                                                                                   ...True if call is blocking & will not return until complete, or false if
                                                                                                                                                       10 - Can Chi non-blocking & returns immediately as "pending".
4830
                                                                                         RETURN: Failure 1 . gota we Will
                                                     the factor of the first Pending Commission and the responsibility of the first of t
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4835
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4840
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                     MEDIA CONTROL
                                              IN LEGICAL CONTRACTOR
                    RESULTCODE MediaControl (MCO TYPE MCO SETTING Setting,
 4850
                                    DWORD STATE BOOL STARKS
                                                                      Param = 0gar. bufus | SAT | S
IsQuery = 0,
                      . .
                             Y .. .*
                                                                       IsBlocking = 1); that the last
 4855
                                                                                     21.27. 2
                         USAGE: Access service provided by encapsulated media control device by presenting media ciri
                                   control seming to physical device control sub-system, the states?
                                                                                Same Groupe 1
                         PARAM: McoType
                                                            ... Specific media ctrl object type for operation.
 4860
                                                                            diesum meen Danboden
                                   Setting
                                                            ... Audio-video-data setting/constant/specifying requested service
                                                            desired from object.
                                                                                     sacial
                                   Param
                                                            ... If required, provides parameter necessary to fully specify request to
4865
                                                            media ctrl objections2collassi stacad
                                                                                  าเกรนิยตสมเ
                                   _lsQuery
                                                            ...True if call is to query sub-system for operation capability
                                   _IsBlocking
                                                            ... True if call is blocking & will not return till complete, or false if
4870
                                                            non-blocking & returns immediately as "pending".
                                   MEDIA CONTROL OBJECT SETTINGS & PARAMETERS
                                   < _Setting >
                                                            < _Param >
4875
                                   BASE OBJECT SETTINGS:
                                   NoSetting
                                                            ...Don't care
                                   Open
                                                            ...Don't care
                                  Close
                                                            ...Don't care
4880
                                   Enable
                                                            ...Don't care
                                  Disable
                                                            ...Don't care
                                  On
                                                           ....Don't care
                                  Off
                                                            ...Don't care
                                   AttachTo
                                                           ...MCO type to which Ivalue MCO will be attached
4885
                                  DetachFrom
                                                            ...MCO type to which Ivalue MCO will be attached
                                  DetachAll
                                                            ...Don't care
                                  AddToComposite
                                                            ...Ptr to label of MCO to add to Ivalue MCO to create composite
                                  RemoveFromComposite
                                                            ...Pir to label of MCO to remove from livalus composite MCO
                                  SetCompositeType
                                                            ... Value selected from one of < MCO_COMPTYPE >
4890
                                  GetStatus
                                                            ...Adr of Ptr that will point to parameter block appropriate
                                                            for the Ivalue MCO; that is, it will be pur to one of:
                                                                      < MCO_AUDIOPARAM > < MCO_VIDEOPARAM >
                                                                      < MCO_IMAGEPARAM >
4895
                                                                      < MCO_DATAPARAM >
                                  GerCaps
                                                            ... < Param > to whose capability is directed such inquiry -
                                  MEDIA CONTROL OBJECT SETTINGS & PARAMETERS CONTINUED
4900
                                  MOTION-VIDEO SETTINGS:
                                  SetColorkey
                                                           ... < RGBVALUE > (cast to DWORD argument)
                                  Assign Window
                                                           ...Ptr to unassigned window's data object
                                  UnassignWindow
                                                           ...Pir to previously assigned window's data object
                                  ResizeWindow
                                                           ...Per to previously assigned window's data object
4905
                                  SecStreachOn
                                                           ...Don't care
                                  SetStreethOff
                                                           ...Don't care
                                  SetImageType
                                                           ... Value selected from one of < IMAGETYPE >
                                  Freeze
                                                           ...Don't care
                                  Unfreeze
                                                           ...Don't care
4910
                                  SetProportionalOn
                                                           ...Don't care
                                  SeuProportionalOff
                                                           ...Don't care
                                  SetVideoFrameSize
                                                           ... Value selected from one of < VIDEOSIZE >
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	MAGING SETTINGS.	
		Francis Start
	AssignWildow	Pur to unassigned window's data object
4915	Unassign Window	IN PH to previously assigned window's data object
	Restrewingow	PU to previously assigned window's data object
•	SetStretchOff SetStretchOff	- Don't cam
	SECTION AND STREET OF A	Den's
esperar de la Maria de la composición	SetStretchOll	Don (care
	Semmage Lype	
4920 that the control of the	SedinageMetric	Value selected from one of < IMAGEMETRIC >
	SetPixel Width	Integer pixel count
		• • • • • • • • • • • • • • • • • • • •
	SetPixelHeight	·····
	SetPixelDepth	lnteger pixel count
	SetPhysical Width	integer units according to current metric
4925	SetPhysicalHeight	Integer units according to current metric
	SetHorzPizelOrigin	
		lmeger pixel count (offiset from left)
•	SetVertPixelOrigin	lmeger pixel count (offset from top)
	SetHorzPhysicalOrigin	imager units according to current metric (offset from left)
	SetVertPhysicalOrigin	langer unus according to current metric (offset from top)
4930	SetHorzPixelDensity	
7730		lasger pixel cours according to units per current metric
	SetVertPixelDensity	lineger pixel count absorbing to units per current memo
	SetImageCombineType	Value selected from one of < IMAGECOMBINETYPE >
	AUDIO SETTINGS	BELL CON ROWING STORES STORES
4935		
4733	SetAudioQuality and the	Value selected from one of < AUDIOQUALITY >
	SynchToVideo	Ptr to video obj tabet to which tvalue obj will synch
and the second s	UnsynchFromVideo	To be video objilabel from which tvalue obj will be unsynch
	EchoCancelOn	Don't care
	EchoCancelOff	
	ECIDCARCION 10	norm Don't care of the said th
g4940 gray sales is remove substituting	SetDTMFDuration	integer number of milliseconds for duration
	LocalDTMFPulse	limeger representing keypad button
12.717 m	Remote DTMFPulse	loseger representing keypad button
*		
		1 202 T 大家介绍的
	DATA SETTINGS:	Sept Salte
4945	SetDataRate	Value selected from one of DATARATE >
	SetSyncX(erMode	Don't care ACPACE.
•	SetAsyncXferMode	Don't care
-		
	SetRestrictedMode	Don't care
•	SetUnrestrictedMode	Don't care a Jai
4950		r Bur se
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KE10		,
	Success	শ্ৰহণী কৰা
	TimedOut	termila sa tisk
*	Redundant	•
4955	RequestDenied	
4755	•	
	NotSupported	
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4960	MustBeOpened	•
•	Disabled	
•	Inlise	•
	MemoryAilocError	
	ResourceAllocError.	'
4965	Internal Error	•
	TimerFailure	
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	InvalidDeviceRearn	
	InvalidOperation	·
4970		•
7770	InvalidOperationNow	
,	InvalidObject	•
	InvalidSemns	•
	InvalidParam	
	NotEnoughBandwidth	•
4975 •/		

	RESULTCO	DE SetDefaultMi	MCO TYPE	MenTuna	•	
	-		court chare	pMceLabel)		
	7• 1400a -	1.1 - 3.	rate in the	भ उठता न एक्ट दर		:
4980	ŲŠĄĢĘ	Set the YCO's	default media cu	i object for the specified obj	ect Nor	•
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	PARAM	: _McoType	State of Carl	Abe of wedra end opiecs to w	hich default media cir	l object will be ser
	8 7 % JC 12	pMcoLabel.	arian,rio ar Omrogra tekalif ba	r to label for media curi obje		25.4
4985		5 a t- 1007 d	Mancha ant F	m recet tot lifetig ein ople	ct to set as default.	
	RETURN		Luc ingani	್ಷ ಪ್ರಾಚೀಕ ಕಾಗಿದ್ದಾರೆ.		
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4995	and the second s	~- IDV8180LJ202 J.YD	ピ だけだし コンプッドレー・・	SettlemsParalStanton		જાર છે હ
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	High place on the the state of	Pince of the	retaint media cit.	object for the specified obje	ct type.	
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5005		The service to the ser	enerus rasili	be or media ctri opiect to wi	nich default media cirl	object will be set.
	a and the	washings and all and		ndle of media cut object to		
	, and	nag bio en process. Managementa	***************************************	note of media end opiect to	set as default.	
	RETURN	2 4 10	,.		*	•
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3023	RESU	LTCODE SetConfProf	LE CONFPROITLE F	rofile);	
	/ -		. tree is an emanded	authoriting of	NAT.
	U	JSAGE: Specify a profi	ite for the conference, or	call in progress, or next cal	(set current profile); that
		. 13. 201001 411 41	gonthm that selects devi	ce modes most appropriate to	the specific call type.
5030					·
3030	r	'ARAM: Profile	Type of	conference profile desired.[3]	11.00
				to the	
	K	LETUKN: Failure		Charles of Chi	*.
		Success		and week at a first of	•
5035		NotSupported		6 44A	
3033	•,	Disabled		ton allien non i	ar.
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	RESU:	LTCODE SetModes(B.			
5040	/•	· ta	I _BMode: =	 California Carlona calch 	
<i></i>			** ** *		
	U	SAGE: Attempt to set	H.221 device modes for	call in progress.	
	_		1. Sept. 085	DE SelferierTharcon Du	Le L'Estate Constitution
	P	'ARAM: pModeList	Ptr to fist (arra	y) of H.221 mode constants	to set. '
5045	•	and the second of the second	CONTRACTOR OF A \$1 Toxic	en consumant such as 12 descindiscret us a literal	(DARL
JON J	Commenced to Cital	The about the second se	Number of mo	des indisere for an down at the	
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5050		Disabled			King Carte
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5055	•	CaliMustBeCo		· les tuff it after t	•
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5060	, ,	ISACE. Temperatural	genebilising as	anon. Mustibe connected or	
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	ALTHOUGH BUT AS	and the can.	धा सम्बद्धाः १५ । व । व ।	and actions to law sums	
	· P	ARAM: none			
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5065	D	ETURN: Failure		naga-	. n : 2 · 2
	• •	Success	٠.	answart. Stemme	
		MustBeOpener	•	2,0002/4 5,44,445,138,138,138,1	
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		InternalError		्रास्त ने स्टेंग्डरिया स्ट्रांस २ वेट विकास के	
5070		LinelsDown		egynturu ratifik	
		LineNotConne	cred		•
	. •/	- FIRETANCOINE			•
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5075	RESULTCOD	E VerifyBondwidth(BASC BASC		AudioMode,	a company		
	/•		JOK"-	A CHICAGO A CANADA CANA			
	USAGE:	Determine if call has stiffle	ieni bandwid	D to Support the thereford	combination =4 -		
		data modes.		ar an approve the appearage	computation of a	neno sue ·	
			3.230,697	neu Jalminio volkus si		•	
5080	PARAM:	_AudioMode	Requested	H.221 audio mode.	e • • •		
	فقد المعدد والراب	· · · · · · · · · · · · · · · · · · ·	Suppose of the S	emandarian in Carana			
	19 19 AMERICAN	_DataMode	Réquested	H.221 data mode.			
	DETTON	:Failure ena La Animas :	• en /		A+-	•	<i>:</i>
5085	. RETURN	Success					
3003		NotSupported		5.43 (4.5)	4.71% i		
		MustBeOpened		e casari	•		
		Disabled		2 may 1 1 1 may 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			. ,
	•	InternalError		sala tida			
5090		TimerFailure					
		UndefinedResult			encommental state of the		
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		CallMustBeConnected 21	eako irla	tut.	. *1		na M
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5095		.21 813(10 A 21 Hap 10	it compared activ	en (III.H calles recented)		-	
•	RESULTCODE	E SetDeviceTimeout(DWO	RD Mesc);	estáncar-is	S Kuns		
	<u></u>	ngra va abomi (20 H)) të	. _{मेर्} इसिंह क्या अप				
	. USAGE:	Set default connection time	out value for	encapsulated network inte	rface in terms of	how tone	23 %
5100		it will wait for a response f	rom the netwi	brk.			
3.00	PARAM:	Man	_	- Fullance	MINISTER .		
	i Adodvi.	_ IVISCL	I ILLIGORI AS	due in milliseconds			
	RETURN:	Failure		लह अभी है कि ल			3727
		Success	,	និសាសន			
5105		MustBeOpened		*6 (A.ac. * 3)			
		Disabled		on Tel cline was			
		InternalError		ebaNZ.11 M.		*	
		TimerFailure		yannati il			$\mathcal{L}^{(i)}(\mathcal{L})$
		InvalidParam		Capter of Johnson	-,•		
5110	•/	•					
				The state of the s	n antigues.		
	RESULTCODE	SetConnectTimeout(DW	ORD Msec) ;	٠.		
	/-			in agreement of arbeits. I	J. 23		H
Š115	USAGE:	Set default connection tune	out value for	all controller in terms of	how long it will y	vall for the	
2113	•	entire call connection seque	nce to comple	te.	_		
	DADAM				14,7,2,44		
	PARAM;	_Msec	Timeout va	luc in milliseconds.			
	RETURN:	Eniham	•	អាំតាននិ	HALTIZA		23
5120		Success		um al			
-		MustBcOpened	٠	Omismy Curtice) of		•	
		Disabled		Draft and I			
		InvalidParam		. Let ball 1781		•	3672
	•/		, .	лие ^{нт} изос.)			
5125				4 14 1 14 2 July 17 12 "			
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	/*=====	ΣειΩω		GRE Agreement	n tandi.	58 L	
	DATA FYCH	ANGE CONTROL	* % : (44)				
		4-3-1-2-4-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	************				
,		N = (3300)	-	Act of	•		•
5130	RESULTCOD	E TransferBuller B	·	idelid •Po€		-1	
				p Buf,	23400		
	* * * * * * * * * * * * * * * * * * * *	าว อุท กก รด าย แยบประวัติ	nomer "le le . Dit chare	pMcoLabel = 0.	37.47 * 6.4		
	•			Political Rivers of a finite of the first of			
****		Command theight	12 77(IsBlocking = 1):			
5135	/•						
P	USAGE:	Transfer buffer to or	from remore	station, depending on the		for the abo	
			e i se est	wise is a term	signal type	for the object.	
الله سادهاند)	PARAM:	Spiduf Lanzar for in	Por	to data buffer to transfer.			See S
				(actory)			
J140 Jr. 8. 2.	Turana 31 25;	EnBytes************************************	Nuz	nber of bytes to transfer.			
	in and the	e Lavad areid attit et ibe.	JN est Till	ஓ			
\$1.48\$\$, 100 114 3.50	g og krig glenske i det vide Talent demok i det vide	_pMcoLabelana a ha	uspolaregir :	to label for media curl date	a object, or	null to indicate	default
	Aprillary of the	IsQuery		*			
5145		Ludocity	Tnu	e if call is to query sub-sy	stem for ope	racon capabili	ty.
		IsBlocking	т	Success.		•	
	•		1 TE	of call is blocking at will	not return t	intii complete.	or false if
	-	•	1201-01	ocking & returns allimetic	itely as "per	ding"	,
	RETURN	Fadere		hanachachachail			
5150		Success		innancial A			
		Pending .		ระการแบบคราม สมาชิกเป็นที่ได้เกา			
		TemedOut		leidari			
		Request Denied	-	12 , [2]			
5155		NecSupported		Leanury whose server			
2133		MuntBcOpened		lauburre enlouii ege		-	
		Desabled		11. 12°,2327 (32°)	ŭ.		
		InUse		a y fandlistavit	I		
		Memory Alloc Error		าว ระเครียม 🗺 กา	i.ś		
5160		Resource Alloc Error Internal Error		A complete			
		LavalidDataType		า _{เกลา} า เกลเก็นสมาช ² ชา รั		•	
		InvalidObject				,	
		InvalidParam					
		CallMustBcConnected					
5165	•/		<u>.</u>				

,	RESULTCODE	E TransferObject(MCO_ XferOb	piect* pXferObj	· '	
	•	const c	- 1 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m 1 m		
5170		BOOL	LsQuery = 0,	in an Milita	
	,	BOOL	isBlocking = 13;	200	
			2.75		
			from remote station, depending on the signal	type for the object.	
5175			Type of object to transfer.	·	
		pXferObject	Pir to the object's descriptor object conta	ining specific information	
	11 July 18 19 14 18 19	pMcoLabel	Pur to the object a descriptor object contains the control of t	mult so indicate defeats	
5180		1 line of the state of	The second of ments city bats objects of	nun to unitate delauit.	
		IsOuerv	True if call is to overy sub-system for on	eration capability.	3
		is last of the fit to fi	Tops if sall is blackers to will are seened	until complete, or faise if	
	and the second second	ध्य विकास राज्य तथा है।	non-blocking & returns immediately as "per	nding".	
5185 - 1	SR Julian Add 2 H	•	- coc04	_	
	endinger roads RETURN	≨ Failiume γ∗acpsorta λεσ λεσ	.A	***	`
	. ,	VICE CAS			
	ing restaution to the restaution	Rending solve to a 442 103	ET & Comment of the C		4 -
	tegral per tak ye	A HITTOGRAND OF THE TARK AND			
5190	•	RequestDenied	Trained ACCIONA		
		Notimptemented	22.438		•
		NotSupported	25 KE 66.5 KE		
		MusiBeOpened	0.0*e≠ * *		
		Disabled	autro Labourt et d'		
5195		inUse	transportation of the	17	
		MemoryAllocError	Service La Salares	: =	• •
		ResourceAllocError	S. O. S. Carlotte		
		InternalError	\$50 Sec. 154		
		invalidDataType	recold war A sycontact		
5200		InvalidObject	Company of Land State of E		
	•	InvalidParam	15757-1-1577-1-1584	na	11.
		CallMustBeConnected	way the same and		
	•1		. \$100 mm %		
			. करून ३ व्या वर्ष १ एड र्रोडाईस्टन		
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			SPINE SERVICE	4.7	

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5205	J*======	ERVICE CONTROL	-	Frank Charlet (1000)	PLE NATIONAL PROPERTY.
			ATIRAL GREEK P	医多克二氏 医二异乙醇	
•	** .:-	to the state of	amar tigte 68 f 1	W · Y	•
	RESULTCODE	E ToTerminal(chare p		• •	
5210	/•		anito of 120	Sec. 10. 1984, 1984.	V
	USAGE:	Write data to the VCO to	rminal OUTPUT post ope	nonally using format stri	ng and variable
5215	PARAM:	_pFmt	Pur to format string.	t to a lab of the second of th	.*
			Variable number of	exi and dam args.	•
· ·	RETURN	: Failure		14124	
		Success	:	त्र मृश्विकारीय स्थापनार्थ	·
5220		RemestDenied		annortice, and	
		Disabled		-	**
		InUse	*		
		InvalidDataType	audin mar de	COME AFree Kerman	, car
		InvalidParem	Historian Cares	•	٠,
5225	•/				•
	ar Huanjan in Clerk	riaba istensional GDV ().	og TUTM: Lateries 1777	<u>ការស្រួលស្គាល់។ ភាព</u> សា	ti n
	RESULTCOD	E vToTerminal(char*	្នា ្ធាស្រ្តាស្ត្ ន នៅក្នុង ខេត្ត	श्रम प्रियम १६५५ वर्ग	
		void.	_pArgList);	かばく じがんぶ	· E .
	/ *	こともはは	14. 空中 电电子	Property of the Same	
5230	USAGE:	Write data to the VCO to arguments. The 20 \ 30	erminal OUTPUT port op	conally using format str	ng and list of pur
	PARAM:	_pFmt	Per to format string.	ystele (4 - 12)T sterense 4	125
5235		_pArgList	Pur to list of purs to	irg strings	
	RETURN	: Failure		541,544	
		Success	•	asythe Throught	
	,	Request Denied		The state of the s	
5240	•	Disabled			
		InUse			
		InvalidDataType InvalidParam	•	-	
	•/				
· 5245	*			1	

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	RESULTCOD:	E FromTerminal(chare _	pFmt,);	Marketti erika erika erika. Marketti erika erik	
	USAGE:	Write data to the VCO ter- format string and list of p	minal INPUT por	t (VCO'command interp	ieter) optionally using
5250		tottime string and itse or p	nam sikntututi.	_ รากสะ คมายเกลว์ การ	
3200	24241	-F			• •
	PARAM:	_brm:	Ptr to format	suring.	
	in the process of the	ermen i grand de mende til til til state til til state til til state til til state til state til state til sta Til state til state t	Variable numi	OCT of a substant bet of text and data args.	
5255	RETURN	: Failure	द्राप्तरों का ब ^{त्र है} ।	\$ 10°C	``````````````````````````````````````
		RequestDenied 1, 5000	in normal is		
		inUse	•	क के देवें .	
5260		InvalidDataType		5.0 1 1.0m.	
	,	InvalidParam		taren selanari, ak	
	•/	•		, * \s.** •	
			•	- salita	
	RESULTCOD	E vFromTerminal(chare	pFmt.	SHIT SET MAYOR	
5265		vaido	pArglist);	minist along	
	/*		_		• •
	USAGE:	Write data to the VCO ter format string and list of p	munai INPUT por us to arguingins.	treate six years of Trill	reter) optionally using
5270	PARAM:	_pFint	್ಟ್ ಕಟ್ಟಪ್ರಾಚಿಸಿತ್ತು Pir to format :	'irear string.	•
	Sinte mont in	erns inca vistorat after 1	NETTER SEASON	(4.00° an in med sente)	
	X1 3 67 X 1442 44	perint perint vision out a time in perint	Ptr to list of p		
5275	RETURN	Success	artist of 145	est of	1667 16 73
		Request Denied	en, érrie	मध्योदध्ये सू	<u>.</u>
		InUse		المراجعة المراجعة	MIUTEA
		InvalidDataType .		24.57 T. 53.52	,
5280		InvalidParam		ten elten i	
	•/			.១: ងរ. ជិ	
			•	sitir)	
				รสหรัฐสมมาก	
		,		สาขางที่ไม่ พิศักร์	
				** * * * * * * * * * * * * * * * * * * *	

	RESULTCODI	E AttachTermToNotifier(HINOLLE	ERL_bNottfler):		
5285		Amach signal as VCO ten stream to the associated !	minal outpl onfiet Rec	it device in order to direct te civer:Object (NRO).	minii OUTPUT	port text
	PARAM:	_hNotifier	rin Hand i	to signal to attach ext.	\$1.0 SA#	
5290 ,:	RETURN	Success Redundant		গলেপ		
5295		RequestDenied Disabled	•	120 2004	a vona	781.
3293	•/	InUse InvalidNotifier		โดยสมมายมาก สายสมมายสมมายส มีสายสมยาย	•	
	RESULTCODE	E AttachTermToFile(cha		ng/TexCeits-ni- Filespec.	. 19	£2:5
5300	. /3 USAGE:	Attach file as VCO termu	VECOS	Append = 0); APEF)woo:LabsTockiesTE levice in order to direct term		zi stream
5305				ecticate visuotym momas ectication of filesto smeh.		(35)
		_lsAppend7	rue if new	text to be appended to curre	ni sucum position	; false if
5310	RETURN			Richardson Robales Inches Contrac		1 1 1 1
5315		RequestDensed Disabled InUse		(with a second s		7.19
	. •/	InvalidDataType			<i>;</i>	
5320	/•	•	BOOL	_pStream, _LsAppend = 0);		• •
	USAGE:	Attach system data stream port text stream to specifi	n as VCO s c data stre:	erminal output device in ordi un entity.	er to direct termun	al output
5325	PARAM:	_pStream		stream to attach.		
		_lsAppend	True i	f new text to be appended to ostition to be reset at time of	current stream po attachment.	sinon: false if
,5330	RETURN	Success Redundant RequestDenied				
5335	•/	Disabled InvalidDataType	^			

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RESULTCODE AttachTermToMcol HMCO
                                                                                                       mToMcol HMCO hMco.
5340
                                          USAGE Anach media cirl object as MCO terminal output device in order to direct terminal output
                                                                             port text stream to media cut object supporting data mansfers.
                                                       5345
                                                                                                                                      ...True if new text to be appended to current stream position; false if
                                                                             _lsAppend
                                                                                                                                      stream position to be reset at time of attachment.
                                                                                                                                                                                    Personal Street
                                                       RETURN: Failure
5350
                                                                                                                                                                                                  40 A
                                                                             Success
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5355
                                                                                                                     Jillernec.
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                                                                                                            G or bassanail.
                                           RESULTCODE DetachTermfrom( TERMODEV OutputDev );

A MO Lindings rapido at 1900 at 1900 tention (CO) at 251 and 1900 tention (CO) at 
5360
                                                       PARAM: QuiputDen : and an analytic minal output device from which to detach terminal output.
                       Content of the PETURN Failure or topology on colores when is the T.
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5365
                                                                             Redundant
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BNSDOCID: <WO___9809213A1_I_>

5375	SYSTEM INFORMATION CONTROL	
,	BOOL IsReady();	• • .
5380	USAGE: Returns true if VCO is ready to make initial call to remote station or multipoint control un	at.
	PARAM: none	Car of
5385	RETURN: True Specification of False (1) August processes of August a contraction contract (2004).	
	BOOK InCollection	4.50
	USAGE: Returns true white call is setting up, but not connected.	
5390	PARAM: none Opening application of the State	2513
	manual Kalanda da la gana ya sumana mahua di mamada da mana kalanda da mana kalanda da 1808 600	. •
5395	False men that it is	
	BOOL IsCallo: Length to the transport of the second parts of the second	
5400	USAGE: Returns true while call is fully connected to remove source and a contained to	
¢	PARAM: none The properties of the Control of the properties of the Control of th	: · .5 ·
5405	False	
	BOOL IsMuttiCallo:	\mathcal{X}
5410	USAGE: Returns true while connected is whore than one remote station or multipoint control unit.	-
	unicated PARAME, choice DM for a publication rough setting for the control of the annual field of the field of the control of	.* \
5415	RETURN: True False 2.000 Navamentes data on 2017 to several 4 173. To 74	·
	BOOLED AND	ţ. #
	IISACE. Bening the of more concess to a milestantial or from the feeting	•
5420	m as stratum assess to the first to the stratum ration sales to have the first to the state of the sales of t	4.
	RETURN: True	
5425	•1	
	BOOL IsRemoteAttached(); (A) or Company of the Comp	
5430	21 - GETTAL AUSAGE: Returns frue if remote station VCO command and/or event stream is accessible to local st	zoon.
	PARAM: none	
•	RETURN: True or Falseta tisses and learned in contract of the second of	
5435		

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	BOOL IsMus	liinstantiated();	· · · · · · · · · · · · · · · · · · ·	ng man diger or processor of		
	USAGE:	Returns true if this	VCO is running with more than	ID 10.1 A PROPERTY OF THE		
5440	PARAM	: none			•	
1	RETURI	N: True or False	m was a grand Trans	Late of the state		
5445	DEVICEDAD	AMA CADALAN		ann Waster		
JJ	. 10	AM& GetDevicePar	_	. 1 - V - A		
	USAGE:	Returns reference :	o static buffer containing copy	of VCO device parame	eters.	•
5450	PARAM	none	•	in met with it	٠٤٠٠	
	RETUR	N: Reference to copy (of VCO device parameter block	(•	
	•/	tivitannos Fin	the of Author in the other of	to annuarid (1004-2004)		£.,5
5455	CONFIGPAR	AM& GetConfigPar	ram();	MOF LARAS		
	USAGE:	Returns reference to	o static buffer containing copy	of VCO config parame	ters.	. સુઝલ
	PARAM:	none		\$114.5	15	:
5460		i:Reference to copy o	of VCO configuration paramete	r.block (0030) J	, a	
	•/ .	an owners subtribt it	्राच्यात्रकात् । अस्ति स्व संदर्भ कार्यात्र स्व	ARVEL House	•	
	CALLPARAN /º	1& GerCallParamo;		grow Shipton		
5465	. USAGE:	Remins reference u	o static buffer containing copy	of VCO call parameter	z .	
	PARAM:	none		an th		
5470	RETURN	i: Reference to copy of	of VCO call parameter block	glaadiintoo Is	e ta	
	•				F . W	.
	(1.6.) (1. \.\\		colPartinO; personal and an			任
5475	USAGE:	Returns reference u	o static buffer containing copy	of VCG protocol-parar	neters.	
	PARAM:	none		and on Title		
	RETURN	i: Reference to VCO	protocol parameter block	Nasa	, a	.3
5480	,			L bakemareVenCi	008	
	CONTROLPA /*	RAM& GetControl			*1	
	USAGE:	Resultis reference s	o static buffer containing copy (of VCO control contex	t parameters.	
5485	PARAM:	none		atti diAnd€Af		•
	RETURN	i: Reference to VCO	control context parameter block	es disputation emili	•	
5490 <u>.</u>	MONITORPA	RAM& GetMonitor	Param();	mount of a coemical of	C (7)%	
	. /•		o strine buffer containing copy	•	- 1	
					rr barameters	i.
5495	PARAM:	none		PARALES SE		
	RETURN	: Reference to VCO	monitor context parameter bloc	ks a መግልደብ እን		

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5500		VCOPARAM& GetVcoParamO;	e regal e la IDAIU
		USAGE: Returns reference to stand buffer contain	ning copy of all VCO parameters.
	ji sije	PARAM: none 2 serie di Alemania di Sala di Sal	
5505		RETURN: Reference to VCO system information p	
			por a policifica de made a a a a a constante de la constante de la constante de la constante de la constante d
		MCOPARAM& GetMcoParam(MCO TYPE McoT	√· ,
5510		USAGE: Returns reference to statue buffer contain	
			edia entropieca i servici se securita
.5	2107 3 7	RETURN: Reference to media cirl object paramete	e block for enquiried made and phicas
5515		•/	Guarantenare Chall BOOD I TON
			SESTITOUS LACESTREEN,
		MCOPARAM& GetMcoParam(HMCO _hMco); /*	San T. TODE (and all acoust)
5520		USAGE: Returns reference to state buffer contain	ning copy of media cui parameter bloci
	. ,	PARAM: _hMcoHandle to	media cupobject Net Totologiana
		RETURN: Reference to media ctrl object paramete	planting medical sections
		•/	MENT E CONTROL STEEL SECONDESSE
5525			والمرابع المرابع
		VIDEOSIZE GetVideoSize(MCO_SIGNALTYPE_S	igType = SignalDet): 360 9 3 10 15 15
		USAGE: Return video frame size for default vide	Last of market light of the colors
5530		PARAM: _SigType: 10 10 10 10 10 10 Video sig	nal to examine for size
		RETURN: Enumerated video frame size value	open, 1990 has to
		-1	growth Light Rife
5535	-	AUDIOQUALITY GetAudioQuality(MCO_SIGNAL /*	TYPE _SigType = SignalDst);
		USAGE: Return quality of default audio object of	specified signal type. J. S. J. 10 m. 32 k
		PARAM: SigType Haras Audio sig	nal to examine for quality
5540			
		RETURN: Emineracet audio quality Valles 12 and	*
		Smeathe media con enject is a testin.	वर्षाकारे <u>।</u> प्रशासिकी
5545		const char* GetH221ModeLabel(BASCODE Mode);
3343	५५ साटर ह	count char* GetH2Z1CapLabel(BASCODE Cap); count char* GetDevicaStateLabel(DEVICESTATE	Design Factor to
		const char GetResultCodeLabel(RESULTCODE F	ResultCode);
		coust char GetEventLabel(EVENT Event);	
. ccen		const chare GetLineStateLabel(LINESTATE LineS	inte);
5550		const chare GetCallStateLabel(CALLSTATE CallS	tate); = _ · · · · · · · · ·
		const chare GetMediaControlTokenLabel(int Media const chare GetMcoLabel(HMCO hMco);	CtriToken);
		count char* GetMcoLabell MCO TYPE McoType)	to ver out a long of the fitter of the
		const chare GetMultiCallOpLabel/MULTICALLOP	MinkCallOn V
5555		const char* GetStationLabel(BOOL IsRemoteStation 1980	os = 0);
		USAGE: Return pur to text label specified state of	
	:5.		
5560		PARAM: The specified state or constant	हाराष्ट्री है स्थान
		RETURN: Per to constant string if argument valid.	eise mill
		e/	menne aggest. 15 21. 27. 525 ft. g.,

****	HMCO GetMcoHandle(const char* _pMcoLabel);	
5565	USAGE: Return handle to media cirl object specified by its label.	+ Q7.5
	PARAMES pMcoLabet 10. 3 to discount applies above to show the first object label.	
5570	RETURN: Handle to media cirl object specified by the label, else null if no such media cirl object found.	
	The state of the s	
	HMCO GetMcoHandle(MCO_TYPE_McoType);	
5575	USAGE: Return handle to media etti object specified by its type.	
	CHEST PARAME (MICOTYPE) (100 TOPALE ILL TOPALE LICE TO SHOULD THE CHEST THE CHEST CH	
	RETURN: Handle to media cirl object specified by the type, else null if no such media cirl object found.	
5580	Taggion is a material partition and a control americal partition of the control o	1127
	RESULTCODE ListDeviceParam();	•.
	RESULTCODE ListConfigParam(); a middle CONMET approach of the ConfigNation and a few hours	
5585	RESULTCUDE EXCENTARAMU;	
	RESULTCODE ListProtocolParam(): RESULTCODE ElectrocolParam(): RESULTCODE ElectrocolParam():	:
	RESULTCODE ListMCOBindings(): or Mile Stanford or Mile Stanford	
	RESULTCODE ListNicolo; RESULTCODE ListNetifiers0:	
5590	RESULTCODE ListNotifiers(): At this management of the management o	
	RESULTCODE List1erminalOutputs();	
	RESULTCODE ListConnectionCaps0;	
5595	RESULTCODE ListMultiCallStates(): /・ 「	•
22	USAGE: Output formatted text listing for specified parameter groups ACC 19	3.32
	PARAM: none Setting as a sense to as a recommence of the Tight	
5600	RETURN: Failure	2.0%
	Success of the second of the control of the contro	
•	AACO A sum out to the transport of the contract of the contrac	
5605	RESULTCODE LISTMICOLAPS (MCO TYPE MCOType,	
	/ Setting; Setting; Setting;	. 6.1
	USAGE: Output formatted text listing of capabilities for specified default media citil object.	
	PARAM: McoTypeSpecific media ctrl object to address	
5610	to the State of the Manual State of the Stat	12.72
	Setting	
	the state of the s	
5615	RETURN Falling	
	InvalidObject	: .*
	InvalidSetting	
	The state of the s	
5620	RESULTCODE ListStationCaps(STATION * pStation = 0); 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
	and the state of t	: 4.
•		
5475	PARAM : pStation the last to the part of t	
5625	RETURN: Failure	
	Success Company of the Company of th	
	InvalidStation 97	
5630		

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	VIRTUAL CONNECTION OBJECT, CONTROL TO SEE THE SECOND OF THE SECOND	٠.,
	The same of the sa	
5635	RESULTCODE EnableVco(BOOL IsEnabled = 1);	وعن در
	USAGE: Set VCO enable flag to true or false to change accessibility of VCO.	` .
	the of the of the menange accessibility of VCO.	
5640	PARAM Is EnabledTrue if VCO to be enabled: false to disable.	
20-10	RETURN: Failure	
	Success	· ,
	Redundant at the Annual County	
	•1 6.1070.	
5645	The state of the s	
	RESULTCODE SetVcoExceptMode(EXCEPTMODZ Wode = ExeptModeUser);	107
	USAGE: Set the current VCO exceptions threshing modelling to make the current vCO	
5650	PARAM: _Mode	
	RETURN: Failure Success Success	
5655	Redundant Charles actual Co. Summars. RequestDenied	
	Crosp in the remaining the results are as a rest.	2.1
•	BRUT MONA	
5660	RESULTCODE SetVcoTraceMode(TRACEMODE _Mode = 0);	
	to the state of th	OT.
	USAGE: Set the current VCO trace output modality to the state of the s	4 * 41
	PARAM: ModeTrace output mode degree!	
5665	acasactava)	
3003	RETURN: Failure	
	Success Bedanders	
	Redundant Control of the Control of	
	NotSupported west as in supermana assume to the transfer of the Support of the Su	
5670	** ** ** *** *** *** *** *** *** *** *	
		3.7
	RESULTCODE EnableMultiCallOps(BOOL ISEnabled = 1):	_
5675	USAGE: Enable or disable the multipoint call control operations. This operation can only enable multipoint call control operations if they are supported by the VCO implementation.	
	DAMAS A DAMAS AND A SAME AND A SA	
•	PARAM: IstenabledTrue if inulapoint control operations to be enabled; false to disal	błe.
****	RETURN: Failure	
5680	Success	
	Redundant	
	RequestDenied	
	NotSupported Must Reference	
5685	MustBeOpened Disabled	
	internalError	
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5690	- /•	ODE EnableDupate	क क्या स्थापन प्रश्ना	4 ரச் <u>சுரை</u> சிலி #ச	egg are was to all in it. A promonery real, the		
	USAG	E: Enable or disab	le the VCO dispair	there was a source of	uztu ili 26 °26 peres ≃esissi es	and the second	
	PARA	M: _IsEnabled	Tnı	e if VCO dispate	.her	false if not.	
5695	RETU	RN: Failure					
	- 5	Success	nata a Lorens M				
	g s o	InUse TimerFailure	P. M. B. B. C. C.		grandle of		
5700	•/				and Allys and Allys		
	PEGRAC	DDE QueueEvent(C1/CNF		atti katu. Lii tatuiti		
	RESULTO		DWORD -	Id, Parami.			
	-		WORD	D 3			
5705	16 15 142	Bradhessii is sta	STATION: 141 T	pStation = 0);	. AE 5 () 나라 교육성인	الأطلبية: ﴿ ﴿ اللَّهِ مِنْ اللّ واللهِ اللَّهِ مِنْ	
	USAG	E. Insert event inte	Pipe EXEIN Linene:	real VCC caust	193 +8 195 ±5	MAJU .	
5710	PARA	M _{conte} ocern gree	тике неприме. Ече	nt identifier.	at and s	tente"	
J. 10	•	Paremi	Firs	t event paramete	r. austreffic.	notal	
		_Param2	Sec	maraq məvə bno	eler. Billingwin		
5715		_pStation	Pur	to station descrip	nor (null indica	nes local stat	con).
	RETU	RN: Failure		•			
	·	OucueFull	ari Norta				**
5720		Memory Alloc E	ntor-country & 140	e eletted DV met		#DANT F	
			Resignation appellists		निकारी ।		
	•1		•		ro. Tr	1 marin (1	
5725					i de prima de la compansión de la compan		
	RESULTED P	ODE SetDispatcher	Rate(int _Msec :		cherRate);		
•	USAG	E: Set the rate at w	hich events are di	spatched from the	ie eveni queue	- 1	••
5730	PARA	M: _Msec	Dis ស 1 មានស ស 20	paich raie in mill	iseconds.	ic Timbr	;
	RETU	DM. Enilman					• 1.
		Success Request Denied	ng in program of an action Special Court of the special	ерде сепація Коде сепаці	en in de mente. Lineamban	THE PLANT	
5735		TimerFailure			entin Site	N. E. M. S. F. 18	
- 1	and the second	InvalidParam	MORORA TO A 11 TO 11	•	State 35. 1		
					teres of the contract	- Tu- 145/4	
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5740	RESULTO	ODE UpdateCopeList(BASCOD	, Jan 1, 38 7	•	14 11 27 277
	•	n la patientil	pCapLabel		•.
		BOOL	LsNewCap	= 1); -, -, -,	95-1.
		an edern an termanda mara we			27547 . ·
5745	USAG	E. Addign remove capability forfi	rom local cases	itima tau	
3/43					
	PARA	Mith_Cape, itteem or her also server	was astall	in tolaigh a	法办法人员
•	a salah sa San San San San	Consideration of the Williams	Capability const	ant.	
	1 1871 1 2 70 1	to virial of all and the controls	- 10 th - 17 th		•
	·	DCapLabel!	Pur to label for c	anabilin	
5750	in the second of the second	pCapLabel group of the Blow Lightscope at 11 to a InNewCappeness another A 50	2 10 21 " 1		
	·	L'New Capacitate rendret A 559	This is now one		
	•	Ir New Cappenters reported & 15	· · · · · · · · · · · · · · · · · · ·	r m sou to litti: (si	se if cap to remove.
	RETUR	N: Failure		100, 1, 17	
		Success		1.70 m	
	,	Redundant	•	A Source	
5755				i tabrobali	
		RequesiDenied			
	•	InvalidDataType		allandatumna	
	•	InvalidCapability	•	स्थानात्त्रं स्थानेत्रात्त्रः	
		InvalidParam	t.:	inancine Terescotti	•
	•1			ร.สเรอบิวสิทธภาค	
5760	•	•		Continue	
	PEG TOO	DW		aeUni	
	KESULICO:	DE UpdateModeCapsXRef(XRE	EF* pXRef.		
		BOO			
	/•			CRef = 1 his	-
	USAGE	: Add or remove mode-caps cros.	basis	Callificate: Cann	
5765		cros	3-reference to/fr	rom local list.	• -
	174044	i: _pXRef px_nef == qoutowideld	tr to mode-caps	CIDSS-reference n	same to
	•		3 ,35 , 36,0 * * * * * * *	Warner and an account to	acore; i i i i i i i
		_IsNewXRefT	rue if new mea-		
5770	101	_lsNewXRefTi	Transfer to 1200	n in sout liste it	record to remove.
3770	RETURI	N: Faikure		•	
		gh Success e it greatered to be se	./2	garaduri Cit	147,70,49,
	ेदुः <i>।।द</i> ***।	Redundant no accorde de grande	r Im RCLL -		+ #200.A
		RequestDenied		-	* 2 4 min 199
5775		InvalidDataType		1.00.74 -5	
		InvalidCapability	•	2.45.25	
	• /.			e have	
	•			30. 20 me	
	RESID TOOK	F 5		Part for to units	
		E EmuControl(EMUCONTRO)	LOP Op.	the management	
5780	/●	STATION.	pStation.	e = 0); ; · · · · · · ·	
	· · · · · · · · · · · · · · · · · · ·	•			
	USAGE:	Present emulation control operati		: Aus 15	
			TOTAL BY A ACO.	8.6.9.805	
•	PARAM:	0		Comment of the photos	
	***************************************	_OPEn	uniation control	operation.	
5785				e dra trian	
		_pStazionPtr	to spanon descr	nptos (null indicat	
			- 142011 (422)	thing turn maters	es local station).
	RETURN	: Faikure	124 22 2	strata ta	
		Success			
5790		Redundant	2 2 1 11 2 .		190 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		RequestDenied - # 25 Chapter 1	All the Dien Const.		
		NotSupported			
	and the second second second second	Internal Error . so man 1917 - 2	1.20 8 30 2	· 2.5 线性等温度 ()。	この 大規模
	West 20 W.	InvalidOperation		Assert Line 1	
		InvalidOperationNow			
5795		Invalid-perationNow			
	in Gually faun 🕥	InvalidScations it comes is cores	• •	. 50	
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				3.0	· 7721
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				200 31 847	
				P * ***	

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5800	•	E AttachToRemoteVco(B(OL_LightoniterOniper 11/2 square 11/2 squa		• •
	/•	2	(*) 2005		
	USAGE:	Gain access to the comman	id and/or event stream of the remote str in is running a VGO for its multimedia	noon. This action is only connection services.	. ••
5805	PARAM:	_IsMonitorOnlyTn	ue if-request is only to monitor the rem lot its command stream (for the purposi	óic VCO's event stream,	
		_IsBlocking Transmit State	ue if call is blocking & will not return t	until complete, or false if	1975
5810		:Failure	locking & returns immediately as pen	ding".	
	,,,,	Success	் ஆ ಕೆ. 4.	. 3	
		Pending	Baut 1977.		•
		TimedOut			
		Redundant	· http://		*: :
5815		RequestDented	that of the state of the		
20,2	8	NotSupported	.gyFe-Contain		•
		• •	gulinea Gaultenii		
		Process Terminated	ายาสุริกับไพร์กา		
	•	MustBeOpened			Cr. C
****		Disabled			
5820		InUse	To the Cate Hook of Canal Or His NEW Co.	ZEOT./Jew	i.,
			1004		
		UndefinedReads ***	,	٠.	
		CallMustBeConnected	ade de famore magelas e especie	A TRACK	0.71
	•/	an recon monnon recian	312 12600 12 1 22 1300 11		
5825			0.4825	Sept. 188	
	RESULTGOD	E DetachFromRemoteVco(BOOL IsBlocking = 1);		
	/*	·	. + 19.3 X 20.3921		
	USAGE#	Discard access gained to co	mmand and event stream of remote sta	Bon. AICLTUZ	8771
5830	PARAM:	_lsBlocking	True if call is blocking & will not re non-blocking & returns immediately as	num until complete, or fair	se if
	RETURN	: Failure	war seller in the seller	perming.	
	,	Success	Company Transport		
		Pending	night Dhisen		ř. ~·
5835	_	TimedOut	والمائم المرافق المرافق والمرافق المرافق والمرافق المرافق والمرافق المرافق والمرافق المرافق والمرافق المرافق والمرافق وا		
		Redundans			
		RequestDenied	TO A THE TENENT TO A TO	(១១១៩៦៣)	
		NotSupported "" -	AUT MAN STERME ONE FOR	A 44 40 41 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	35"
5 84 0		Process Terminated	•	•	
3040		Capable 7.77 ;	A reasonation of a nonations a many	(5.49)	
		MustBeOpened	n T	48.582.5	
		Internal Effort 156 Both 160 Ht	Maring and	•	
	•	TimesEniber			53
5845	9 92 45 12	UndefinedResult	as at agree a support		
		CallMustBeConnected		RETIRUS	
	•/			To the party of the same of	
	•		್ರಿ ಬದುವುದೆ ಪ್ರ		
5850	RESULTCODI	E SetVcoControlMode(DW	ORD_ModeFlags = Masterial;1997 %		<i>₩</i> . '.
3030			अस्त्रभाष्ट्रसम्बद्धाः की बार्यं		
	USAGE:	Set the mode of VCO contri	of so that calls to member functions dis	ve the local or the remote	
		VCO, as configured.	anna disari		
		<u></u> .	. Spirit is the control of the contr	i	- 15,7%
608É	PARAM:	_ModeFlags	VCO control mode flags selected fro	m < CONTROLMODE :	>
5855					
	RETURN	: Failure			
		Success			
		Redundant			
		RequestDenied			
5860		InternalError			
	-	InvalidOperation			
		InvalidOperationNow			
		CallMustBeConnected			
	•/	. =			
5865					

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	CEESSED ONLY TOO OF "YOU CESSED)	DWORD ModeFlags = MonMe	METOCSI):	
	USAGE: Set the mode of VCO m	mitoring so that the primary event	Tream form the tree	
5870				
	BALL TO CUETY THE MANAGER	Angeles of a contract of the second		ъ.
	PARAMI ModeFlags = F = F = F	VCO monitor mode flags sele	sted from < T4000mm	
	RETURN: Failure	2- 2	TOTAL C MONITORMO	DE >
_	Success		5 F 4 SASTER	
5875	Fine Redundant Lars 1990 a to	u er		
	RequestDenied N.S.O allo		1 to 1 to 1	. "
	namenalErrors 5:30 cts		5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	
	InvalidOperation (30 - 30			
****	lavatidOperationNow * *		Company of the Company of the Company	
£880	CallMustBeConnected		25 5 2 5 20 EV 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	government and a man and the contract of	าสุริกา ว่า	na recente Automotiva successive	• 1
	minimum was bustness in death in the min. Little		் ஆ ிக ள்ளது. சிறைய	
	RESULTCODE SetStationLabel(char*	plahel.		
5885	char*	pNum):		
	. 10			
, , , , , , , , , , , , , , , , , , ,	USAGE: Set label for the local state	on.	mana James 150	
	0.5		ACCOUNTS OF STREET	
	PARAM: _pLabel	Pur so station label		
5B90	RETURN: Failure			
		IAN DEVICE CONTROL MONEY		
	Duote33	And has a late time and it. It was use use one and its year of		
	InvalidDataType	mujiroda (490 est dodut)	6.75.75 . enter	
	10 Az 17 6 4 5 00 00 00		E	
	the Secretary of the Secretary Secretary Secretary Secretary Secretary Secretary Secretary Secretary Secretary	nen - es synst	-ASSET	
5, 177	grand for the end of the court	a to the or O. of the oracle to a con-		3.50
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	e jerke og på angså præder ada lakk så predjerver at værd ble	20140 Lite.	1. A. G. C. B.	
10 37 44 5	The part of the control of the contr			
	. The state of the first transfer of the second	•		
	and the second s	أراف أنهاكم	374 (34)	ξ,
		raya"	•	
	,	43.00	*	
		6 32 St.		
, .		WERE STANDING	,	
•		്യൻ വിധിയ അവര്		:-
		ବଳନ୍ତି ଅଧିକ ଅଟେ ଅଟିଆରି ଜଳନ୍ତି ଅଟେ ଅଟେ ଅ		;.
		ালনামী হ'ত আন মতেতী ইলম্মী হ'ত হ'ত ক'ল এলনীখনত হৈ		;.
		ବଳନ୍ତି ଅଧିକ ଅଟେ ଅଟିଆରି ଜଳନ୍ତି ଅଟେ ଅଟେ ଅ		;·
		ালনামী হ'ত আন মতেতী ইলম্মী হ'ত হ'ত ক'ল এলনীখনত হৈ		;-
		ាយមាន ស្លាប់ ស្លាប់ ស្លាប់ ស្លាប់ មិន ស្លាប់ អាចស្លាប់ មិន ស្លាប់ មិន ស្លាប់ អាចស្លាប់ មិន ស្លាប់		j.
	دوغاده و الا مع في	ালনামী হ'ত আন মতেতী ইলম্মী হ'ত হ'ত ক'ল এলনীখনত হৈ	en e	Ç.
		ালগোটি এই জান নিজেবি চালগুৰী গোটো না চালগুৰীৰ বাবে চালগুৰীৰ কৰিব কাৰ্যস্থানিক বিজেবি বাবে জিন্তু এইটিসন চ্চালগুৰীৰ কীটি ইয়েইটি		Ç.
	our CERN disvise country to in any aug ten and carry our	Tomini du la lam nasali Sana Bini du ti Sina anfissa i Di Anda Poderna du ansi Balaji (1990) nasayi na Ang Di Ulini Padha asine sa lamana i na Talini di Ingilia	en e	i.
ta -	our CERN disvise country to in any aug ten and carry our	ালগোটি এই জান নিজেবি চালগুৰী গোটো না চালগুৰীৰ বাবে চালগুৰীৰ কৰিব কাৰ্যস্থানিক বিজেবি বাবে জিন্তু এইটিসন চ্চালগুৰীৰ কীটি ইয়েইটি	That was	

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5895
                        ALL MEMBERS BELOW ARE TO BE ACCESSED ONLY FOR THE IMPLEMENTATION
              OF THE ABOVE DEFINED PUBLIC MEMBER FUNCTIONS THAT COMPRISE THE SOFTWARE CONTROL
THEY ARE NOT AVAILABLE TO CLIENT APPLICATIONS.
5900
           of the private and the state of the state
. 1
                                                                                   and the
         typedef enum (
                                                                                  E: 53'8 .
           AudioSemp.
                                                            // Invoke OEM audio senip component
5905
           VideoSemp.
                                                            // Invoke OEM video setup component
           imageSemp.
                                                            // Invoke OEM image serup component
           DataSensp.
                                                            // Invoke OEM, data semp component
           UpdateCapsList.
                                                            // Add or temove device aspability
                                                                                                                        · > 80
           AttachToRemoteVco.
                                                            // Perform device operations to connect to remote VCO
5910
           DetachFromRemoteVco.
                                                            // Perform device operations to detach from remote VCO
           VendorSpecificOp.
                                                            // Vendor-specific device control operations
                                                        إيه للخوزون
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                                                       11 . case file
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5915
                                                               Supplied for root, for the worst suppose
          IOControlOpEnd
         ) IOCONTROLOP:
                                                                                   13 18.11 P.A. Land
                                          led School 4. U.S.
                                                                                                                         535
                                                                                    annest Maristan
                    PURE VIRTUAL DEVICE CONTROL MEMBERS
5920
                                                                                    Sec. 18.25
                                                                           and I shall be not
                   virtual RESULTCODE DevOpen( BOOL _lsBlocking = 1) = 0;
                        USAGE: Open encapsulated devices, load and irrutalize OEM device control software and MCI device
5925
                                   drivers; prepare VCO to place outgoing, or receive incoming call.
                        PARAM: _IsBlocking
                                                            ...True if call is blocking & will not return until complete, or false if
                                                            non-blocking & returns immediately as "pending".
5930
                        RETURN: Failure
                                   Success
                                   Pending
                                   TimedOut
                                   Memory Alloc Error
5935
                                   ResourceAllocError
                                  internalError
                                   TimerFailure
                                  InvalidDeviceReturn
5940
                   virtual RESULTCODE DevClose( BOOL _IsBlocking = 1) = 0;
                        USAGE: Close encapsulated devices, unload OEM device control software and drivers; shutdown all
                                   systems related to establishing calls.
5945
                                                            ... True if call is blocking & will not return until complete, or false if
                        PARAM: _IsBlocking
                                                            non-blocking & returns immediately as "pending".
                        RETURN: Failure
5950
                                   Success
                                  MustBeOpened
                                  Memory Alloc Error
                                  Resource Alloc Error
                                  InternalError
5955
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	virtual RES	TULTCODE DevCon	PERIODAL PROPERTY STATIONS	_CallParam.	Brains n	L
5	960	remote stimes aromas	or a BCOEstable 1 car	_pStation, lsBlocking = 1)	~ 0:	
	USAG	F. Connect to server				
			sugge, or multipoint con	itroi unit.	N. 8 1/2	
	PARA	M: _CallParam	at the heavaReference to	NCO white		• '
59	963	A MILLION AND A PROBES	A 49.813.a-aca	a vico can paramete	r record.	-
		_pStation	Ptr to remote	station descriptor to	Which company	
		IsBlocking				
•	,		i Fue if call is	blocking & will not	renim until compl	ett. or false if
50	270		mon-piocking &	returns immediately	as pending.	
.,,	RETUR	LN: Failure	•	क्षण प्रतिवर्धकार व	ē	
		Success		32 Jan		
		Pending TimedOut		Menson Allectors		₩.
		MustBeOpened	17-7	ជានី របស់ការបាល ខេត្តកំ		
59	75 _.	inUse		Herd Consert		
		MemoryAllocError		Investaliana Calledon Becanna		
	•	Resource Alloc Erro		and a light for the first of th	**	3. 3.
		Internal Error			•	
598	BO	Invalid Scenon	Catherina Land and Como	enciona a accordi	FER 25, 250	
		Inval dDataType	PE			
		LineConnectFailed LineIsBusy			٠.	
	• • • • • • • • • • • • • • • • • • • •	CHECOUSY	inonse संस्थान सूच ४ ६३६	TOMESTE STANDA	EPA41:	4.40
598	35	a VCU (aji <u>ou emur</u> a	्र अस्वतकोहर्षे	markette i	AP Q T	
	TOTAL RESU	LTCODE DevMultiC	ODDECK MULTICALLO	OP Op.		
	to the melandaria	, ಎರ್ <mark>ಸಮ</mark> ಚಾರ್ಯಶಿವಾಗಿ	CALLPARAMA	CallParmo.		
			STATION. BOOL	_pStation == 0,		.72
599	•	•	BOOL	_lsQuery = 0.	1 913 (
277	- /-			_LiBlocking =		
	USAGE.	implement multipoir	a control operation while	COnnected to miles		
	PARAM		· ·		out control unit.	inhie
	PARAM:	_Op	Mulapoint cont	roi operation.		
599	5	CaliParam		য় হা⊋ গলায় প্ৰেছ	•	
	*		Reference to a	VCO حياً parameter	record.	
		_pStation				:
		_		scriptor for selected	operazion.	
6000	•	_lsQuery	True if call is to	query sub-system fo		
		IsBlocking				
	, .	"INDIOCITING	True if call is bi	locking & will not re	um unol complete	or falso if
	The first test of the second of the second		non-blocking & re	T AIRTIGHT THE THE	pending.	. or reset to
6005	RETURN	: Failure	print to the consistency for the analysis		f .	
~~)	•	Success		.s. e	aje more	
		Pending		•		
		TimedOut	•	* 34 1	*.	
		Redundani RequestDenied			-	
6010	· ·	NotSupported		A TO		
	•	MustBeOpened		18 19 19 19		
	·	inUse		الله بالله الله الله الله الله الله الله		0.35
	•	MemoryAllocError		ing and the second		,
6015		Resource Alloc Error	•	***	•	
,		InternalError	14.5	sar Carlo de	-	
•		InvalidStation			•	•
		invalidDataType				٤
		InvalidOperation InvalidOperationNow				* ·
6020		CallMustBeConnected				
		NoCallForLineAdd	•			
	•/		•			

	virtual RESULTCODE	E.DevDisconnect(int	nime = 0.		<u>.</u>		
6025	•	THE PLANT NO BOOLS		= 1°) = 0;	. I I I		
	USAGE: Disconu	nect one or more lines com		note station or mu	itapoint control un	n.	
6030	PARAM: _nLine	g over all months Num	sberof link ^o t	o disconnect: nut	disconnects all li	nes	
5050	IsBloc	iking 🦿 🚅 👝 a a a waa Brue	if call is blo	ocking & will not	return until comp	iete, or false i	ıf
	SE SENIO 11	non-blo to the street of the second	cking & ren	urns immediately	as "pending".		1.712
	RETURN: Failure						
6035	Success	Facts, ories of also house. The		Just Her			
		🛂 po o proportio a 🔏 de la construcción					
	TimedC MustBe				64. T.CS		u" ‡
	InUse	Opened		9.84.0			, .
6040		YAllocErtor		Section 1			
•		ceAllocError		เส้าเหลาหลั			
	Internal	Error		MestilleOyenea			r mgra
	. InvalidI	Line		selda.		•	•
	=	ustBeConnected		Contractor (. شد د	
6045	•/		1011	Resource Allege			٠.
	MATERIAL PETER TOOMS	CALLBAR		internacione	•		
	VIRGIA RESULT CODE	E DevAnswer(CALLPAR, int		allParam. Line) = 0:			
	/•			almer) ~= "ປຸງ" ປະຊານສອດທາງປ່າການປ່			
6050	USAGE: Answer	r incoming call from remove	station.	v กับเลี้ย์ Willia			
				•	• •		
	PARAM: _CallPa	ıramRefe	rence to a V	CO call paramete	r record.		: 4
	_•	AND STREET, STREET					
6055	nLine		poct of line r	o disconnect; nul	l disconnects all lis	nes.	
ددس	RETURN: Eailure	siting					
	Success.	· ·	•				
	MustBe	Opened			*	*	07 71
	InUse	ameraca si in in in incinci	otmos mese	ada in international designation	30°W 1	· ***	
6060	Memor	yAllocError				;	
		ceAllocError		:.,	5.081		
•	lmernál					-	1.4
	19. J. Javalidi	DataType பது நடிப்படு. Line		ಡಾರ್ವ*್ ಕ್ಕ			
6065	Invalid	OperationNow,		mag. Adj			
	LineCo	nnectFailed		•			
	•/ 	an Arana in 1 Per Sec. 1.		firming.			y 30
			-	prospole.			
6070		EDevAbortO = On show		in crosses			
••••		eur grant à gradou de note consection, or connec	non in nene	PP 11 10 PP PP 019 11	7505 or muineo		
			H. PIOB	grating.	Thou of Hithmaton	control unit.	1.6
	PARAM: none	•		e manana			- • •
				المستعالين			
6075	RETURN: Failure			pactions *	4		
•	Success	=		รณ ากสมรถ วิ			
	TimedC			h sussetti deserve h San enn			12 3
	MustBe	Opened		्राणक्षक्रमधीलाहर च स्थानमधीलाहर			
6080	in üs e Mamoo	yAllocError		n seine marken. 17 f. si			
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•	/•			WO CALLPARAME		
		USAGE:	Get information for ca	II. or for partially connec	ted call. Can be use	d while co
6090			establishing to monitor	call progress.	The Carrier Section	a winie counect
		PARAM:	CallParam	Def :		
				Reference to a Vi	CO cali parameter re	cord.
	-	RETURN	Failure		ال و محمدان	
			Success		a. 2.6° :	•
095			TimedOut		t. 192	
			MustBeOpened		to the state of	
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00			Resource Alloc Error		20 Sept 16	
			InternalError	1663.31	tot Brazali	*
•			InvalidDataType			• •
			LineNorConnected			
ns .			LinelsBusy		•	
05			DisconnectRequest			
	•/		-			
				•		
	Virt	BU RESULT	CODE DevMediaCon	trol MCO TYPE	McoType,	
10				MCO SETTING	_Setting,	
10			•	DWORD	_Setting, _Param == 0,	
				BOOL	_LsQuery = 0,	
				BOOL	_IsBlocking = 1)	- •
	/•					
15		USAGE:	implement media ctrl co	ontrol setting by making o	Calls to device contro	d comme
••			ayers and MCI device of	drivers.		r zoitwate
		PARAM: (same as MediaControl)			
		Dem mail				
20		RETURN:				
			Success		4	
*			Pending FirmedOut			•
			RequestDenied AustBeOpened			
15			nuscae Openea n Use			
		_	demoryAllocError			
			Lesource Alloc Error			
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0			indefinedRepuit			
		11 t.	nvalidDataType			
		11	nvalidOperation nvalidOperationNow			
		I i	TVELIGUDE CELLICIPNOM			
		:				
5		ıi	nvalidObject			
15		ıi	nvalidObject nvalidSeming			

6140	virtual RESU	LTCODE DevEmu	Control EMU	CONTROLOR Op) = (S		•
0140	USAGE:	Implement emulai	uon control oper	ration for this VCO			
	PARAM	(same as EmuCor	ntol) = 18 (in 19 Hereit 1945 Hereit 1945 Hereit 1945	TO SEE STATE OF SCHOOL SECTION OF			•
6145	, RETURN	ls Failure a 🐪 🔾 😅	in, ritofe.	18 18 July 3	8 - 12 - 4		
		Success	•	स्वयुक्त			
		Redundant RequestDented		28,32 J. S. C.			,
,	•	MustBeOpened		COM NO			
6150	•	MemoryAllocErro	or	នេះមានស៊ុន ១៤ ៣			
		ResourceAllocErr		- به باید اکنویسی - به باید اکنویسی			
		InternalError		**************************************			
		InvalidOperation		ত প্ৰস্থিত কৰিছে প্ৰতিষ্ঠান কৰিছে । স্থান প্ৰতিষ্ঠান কৰিছে সংক্ৰমেৰ্ট			Of #
		InvalidOperationN	iow	A Secretary of the second seco			
6155	•1			ervices at a			
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virtual RESULTCODE DevXmtData( BYTE OCRBUL, care in
                                                                                                                                                                        ALRENDATION AND A
                                                                                     HMCO hMco = 0.
       6160
                                                                                                   BOOL IsBlocking = 1 ) = 0;
                                                                                                                                                                                                                                                               . .
                                                         USAGE: Transmit data buffer to remote station, for a specific data object.
                                                                                                                                                                       Carlotte Carlotte
      6165
                                                         PARAM: DBuf if a second to reserve it
                                                                                                                                  ... Per to buffer containing data.
                                                                                                                                                                                                                                                             . i ....
                                                                                                                                                                                 T121, 10
                                                                              _nBytes
                                                                                                                                  ... Number of bytes to transmit
      6170
                                                                                                                                                                           NO 184 B
                                                                              _hMco
                                                                                                                                  ... Handle to datatobject to use for data transfer: null indicates default.
                                                                                                                                                                harming this wild
                                                                             _lsQuery
                                                                                                                                 ...True if call is to query sub-system for operation capability.
                                                                                                                                                        Resources Institute.
                                                                             IsBlocking
                                                                                                                                 ... True if call is blocking & will not return until complete, or false if
     6175
                                                                                                                                 non-blocking & venirius immediately as "pending".
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                                                        RETURN: Failure
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     6180
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   6185
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                                                                           CallMustBeConnected
   6190
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                                            virtual RESULTCODE DevRevData( BYTE.
                                                                                                                                                    _pBuf, colored all rick
                                                                                                                       int
                                                                                                                                                     nBytes = 4 lettage
                                                                                                                       HMCO
                                                                                                                                                     tMco: €10, 29 cas
  6195
                                                                                                                       BOOL
                                                                                                                                                      bQuery ==0; ...
                                                                                                                       BOOL
                                                                                                                                                     IsBlocking = 1 ) = 0:
                                                     USAGE: Post request to receive data buffer from remote station, for a specific data object.
  6200
                                                     PARAM: pBuf
                                                                                                                              ...Pir to buffer containing data.
                                                                          _nBytes
                                                                                                                               ...Number of bytes to transmit.
                                                                          hMco
                                                                                                                              ... Handle to data object to use for data transfer; mill indicates default.
  6205
                                                                          LiQuery
                                                                                                                              ...True if call is to query sub-system for operation capability.
                                                                          IsBlocking
                                                                                                                              ... True if call is blocking & will not return until complete, or false if
                                                                                                                             non-blocking & returns immediately as 'pending'
 6210
                                                    RETURN: Failure
                                                                         Success
                                                                        TimedOut
                                                                        NotSupported
6215
                                                                        MustBeOpened
                                                                        inUse
                                                                        Memory Alioc Error
                                                                        ResourceAllocError
                                                                        InternalError
6220
                                                                        InvalidDataType
                                                                        InvalidObject
                                                                       InvalidParam
                                                                       CallMustBeConnected
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6225			200 0erkastors	. ** 4 **		
•	virtual RESULTCODE DevSetModes(BASCODE	pModel.ist.			•. •
		int	pModes = 1);			-
		33 1.3 00 111 N 1874	: 1 D		-	
	USAGE: Attempt to set H.221 device to	nodes for call	iĝ progress.			
6230	•	141 _ LB16:				
	PARAM: _pModeList	Ptr to its	t (array) of H.221 mode	co <i>brasun</i> to re	ι.	
	PARAMI DIMOTELIS	1977 HOW ME DI	13.450			
	nModes	Number	of modes on lies			
	is a man group manth.	रकाचे .				
6235	RETURN: Failure		.3241		•	
	Success of earlies of	-क्यां				
	TimedOut		ا الأواء		• •)√ è
	RequesiDenied and Asia	1.1.4.1				
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6240	Commission with a man Memory Alloc Error (1)	3.53				
	ResourceAllocError		्रवास्त्र संबंध	•		
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6245	InvalidParam		أَوْسَتِهُمْ فِي الْمُسْتِهِ فِي الْمُسْتِهِ فِي الْمُسْتِهِ فِي الْمُسْتِهِ فِي الْمُسْتِهِ فِي الْمُسْتِهِ فِي			
7	CallMustBeConnected		a Channel	•		
	•1		parisoned .			36 13
	, ,		Santage Car Alatica			
	virtual RESULTCODE DevSendCaps	(BASCODE®	pCapList. 32, 62			
6250		int	nCaps = () = 0			
	/•		4 M 4 / M			
	USAGE: Transmit the specified of	capability set a	o the remote station			111
			may I still recens the			
	PARAM: (same as SendCaps)		in other mi	-		
6255			ourra distant	*		
	RETURN: Failure		Dall dune Couranted			
	Success		A STATE OF THE STA	3.5		`N. '
	TimedOut	,				
	RequestDenied		wedness and sadure	DINGS COLUMN		
6260	MustBeOpened : 4:	The state of the s				
	Memory Alloc Error.	् रुख्या				
	ResourceAllocError	1003			•	1715
	InternalError # 2	3004	•			
	a InvalidDataType Av	41, 14, 1		ia.		
6265	InvalidCapability		Cotton Continued Fig.	757 p. 2 . 3		
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virtual const chare DevGethtudeLabell BASCODE Mode ) = 0;
                                                                                                                                                                   Turk Dalik Bakti Japan
       6270
                                                    USAGE: Get text label for specified H.221 mode.
                                                    PARAM: Mode
                                                                          H.221 mode consum.
      6275
                                                    RETURN: Pir to constant character string if argument valid, else milled
                                          virtual const char* DevGetCapLabel( BASCODE _Cap ) = 0;
     6280
                                                   USAGE: Get text label for specified H.221 capability.
                                                   PARAM: _Cap
                                                                                                                   ....H.221 capability constant
                                                   RETURN: Per to constant string if argument valid, else mill revisite areas
     6285
                                                                                                                                                  cay โดยสรีเรียโด จน
                                         virtual MCOPARAM& DevGetMco('HMCO_hMco') = 0; gnass&sistent
                                                   USAGE: Return reference to static buffer containing copy of modia ctrl object parameter block
    6290
                                                                                        10 = ( possid_GROWO tress milistered_GOOTERSCOS on re-
... Handle to media cut object.
                                                   PARAM: hMco
                                                  RETURN: Reference to copy of media cut object parameter block for specified media cut object
    6295
                                                                          apappeartists of their exposed in-
                                                                                                                                                                  wild Hallon
                                        virtual HMCO DevGetMcoHandle( const char* _pMcoLabel ) = 0; 3936 F 4,235-336
                                                  USAGE: Return handle to media ctrl object specified by its label? Form (
   6300
                                                                                                                                                     the separate services in
                                                 PARAM: _pMcolabel
                                                                                                                 ... Per to tabel to media crit objectifabel.
                                                 RETURN: Handle to media ctrl object specified by the tabel, else null if no such media ctrl object found.
                                                                                                                                                        Crist Lawrence
   6305
                                       virtual HMCO DevGetMcoHandle( MCO_TYPE _McoType_) = 0;
                                                USAGE: Return handle to media ctrl object specified by its type.
                                                PARAM: _McoType
                                                                                                   Media cut object type= ) and 0.50 contact type= )
  6310
                                                RETURN: Handle to modia cut object specified by the type, else null if no such media cut object found.
                     and the second of the surface property of the second second surface surfaces and the surface of the second of the second 
                                      virtual RESULTCODE DevSeiDefaultMco/ MCO_TYPE_McoType,
                                                                                                                                           and the second of the
  6315
                                                                                  auren onnes 125 H. const chare _pMcol abel ) = 0; Manual
                                               USAGE: Set the VCO's default media cut object for the specified object type.
                                               PARAM: McoType
                                                                                                               ... Type of media etri object to which the default will be set.
 6320
                                                                  _pMcol_abel
                                                                                                                ... Per to label for media ctrl-object to set as default.
                                                                                                                                                     vo m. . 🕾
                                               RETURN: Failure
                                                                  Success
 6325
                                                                  Redundant
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                                                                  NotSupported
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                                                                  MustBeOpened
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                                                                  InUse
6330
                                                                  Internal Error
                                                                 InvalidDataType
                                                                 InvalidObject
                                                                 InvalidSemng
6335
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13.4

8 D

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24.

5.2

virtual RESULTCODE DevSetDefaultMco(MCD, TYPE McpType) = 0; | hMco | moo) = 0; _bMco) = 0; ಕರ್ಮಾಣಿಕ ಚಿತ್ರಗಳ ಸಿ.ಮ. ಇ USAGE: Set the VCO's default media cirl object for the specified object type. 6340 PARAM: McoType (1910) 2017 Type of media ctrl object to which default media ctrl object will be set. _hMco - 15 - Fell Handle of media ctrl object to set as default. 6345 RETURN: Failure TO BE ELL BUGDESS BASES OF E Success Redundant हार के सुरक्ष के प्री की देवती स्थापना अवस्थित है अपने हैं के 1.202 4 NotSupported MustBeOpened 3. T. Disabled starro . v disdussa (CD. H... 6350 Internal Error Sun sera course in recognition places dispared in the Recognition invalidDataType InvalidSeming 10 = (p.Md_ ODMS tooMssilved AUASS SOTIA surrey 6355 NEACE. Networkeletence to seate buffer concerns copy of mears cut object polycom play. OPERAND RESULTCODE DevSelTimeout(DWORD _Misec) = 0; BARREY BAKEN USAGE Set connect timeout for network interface unit. 6360 PARAM Msec ... Timeout value in milliseconds. RETURN, Failure ib or (Potecarotela - Potecarotela or utaliforation) + G. CONG torus in Success 6365 TimedOut is early political toolly his triage or stead areas. The fill RequestDemed sometimes back to in MustBeOpened and the edge of Yes ... ResourceAllocError as impostromac magna into anounce attends. AND TEA 6370 HARLES TO MARKET TO internalError InvalidDataType H. Organ, 2007(10000 whiles es) has 200 000 with a sept. ġ. InvalidParam 6375 MAA: 4 Sec. 3 357 5 varual RESULTCODE DevVerifyBandwidth(BASCODE AudioMode, BASCODE DataModes # Orman 6380 USAGE. Verify that connection has sufficient bandwidth for specified audio-data mode combination, with respect to the current video mode (if applicable), 2003T Field learner principal 35 PARAM: AudioMode 1802 Market H.221 audio mode. "_DataMode only is to so sometimes the control of t 6385 STOTISH MARKET RETURN: TimedOutcopis 12 244 To the Secret. Capable SI SJERIAE مين ان incapable: 6390 MustBeOpened 加州州人和西 InUse Sa Modeli Memory Alloc Error สมบัวสาหาร์ส์ ResourceAllocError internal Error ละกรดนี้ เป็นแล้ 6395 InvatidMode ... 41 5 CaliMustBeConnected 12.50 · mail was sil . Car. 5 2 mi Committee (1977) e was enta

	wineral DECT	70000				
6400	Antenn Krezhi	CICODE Devic	Control DW	ONTROLOP OF	CONTRACTOR	
			DW	ORD Pa	rami = 0,	
				ORD Pro	ram2 = 0.	
was selected and the selected	• • •	1 % . 13 #6 #2 # #	300)	dery = 0.	13.5
,	/•	ALTER H	31111 200	LE LEB	Hocking = 1) = 0;	
6405		1	131	- 	• • • • • • • • • • • • • • • • • • • •	
	CSAUE:	imbiement mon	Douper devic	control operation	by making calls to device control s	
	•	layers and spac	ific OEM-prov	ided system compo	by making calls to device control s ments. This member function may	onware
	.	on generablets I	o rpable dusto	mezed support for s	specialized, implementation-depend	oe unized:
		tomplement T	not well-repr	esented in the stand	pecialized, implementation-dependent fard VCO device control member r	rist
6410		COUNTERNET !	his military fu	nction is provided a	lard VCO device control member r is a mechanism to build structured.	unction.
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ign beam no are the disco- prise 6415 and the same is	ing of the second	August G. (1.8)	erica in a service de la	inputouput device	control operation requested and	
21426415.00 010.538.81	and and the second	Param1.	a de la compansión de la c La compansión de la compa	ersa om 111 d	a parameter necessary to fully spec	. 0
ma to Cristian at a succession	r these parts are	Same and the second of the second	appropriate the market	ir required, provide	s parameter necessary to fully spec	ify, remiesi
		Param2	•			
		• ,	- • • •	it required, provide	es parameter necessary to fully spec	ify request
	•	LsQuery		Tong of and	And the second of the second o	.,,
6420		and the second	 Grand-tenc	TANG OF CALL IS TO GO	ery sub-system for operation capab	tity.
	and the second second section in the second	_lsBlocking	termenter of the other	Constit son ation to	ing & will not rearm until complete	e e e
marally the Sydner College	the second second		DOI	-blocking & Time	ang & will not renim until complete	or falsetife:
	S 2 1 0 0 1 1 1 2 1	en introduce the in		. a . a a marife of 1610111	a invitediately as pending	L 114
6425	RETURN:	Failure		•		
942		Success	er og gar en om	relanguage up was the beautiful. His	लगा एक एक पुरुष पार्क रही प्रकार के अने अंदर्भ अपने उसे अगा लगा लगा के अने	4 N
	,	Pending	70.77	ariadicisi et a	luccia mont, doleta lin lat	.a
	•	TimedOut		10 11 Think Hall	o e mou mos mastro da var	State of the second
		RequestDenied	in common se co	may have take to be the bar of the	enance and the companies and the second	•
6430		MustBeOpened				
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	1	Memory Alloc En	or in tracease.	-	National to the 1 BC 121	·
•		ResourceAllocEr	FOR COMPANY NOT		and Brightster (1985) and the control of the contro	State of the state
		InternalError	.5: 1200 C *a6	•	 จับสะเสยสลักแท้ในระจะไวลนี้ ไปไป สั 	1
6435		TimerFailure	"我们为 。"		were seen a subject to the subject of	
- 100		UndefinedResult	\$3200000000	-:	water a straight of the state o	
		nvalidDataType	N. 12000 18 CO	12	Take the second of the second of the	3. "
		nvalidOperation	WENCH !!	**	អំពីសំណុកនៃ ភេទសភា ស្រី ដើម្បី ម៉	
	1	nvalidOperation/			THE WASHINGTON AND AND THE STATE	-
6440		nvalidParam	POSTETO IL	.1	motalization and the file of the	
	•/	Uthers accordi	ng so sumpleme	ntation requirement	😦 🌬 Karibestal Carrierin Tarrico (n. 1777)	
-	•		SERVICES:		The production are the production of the contraction of the contractio	
		,	orbodients.		Fig. 5 and Andrew Co.	t.
i .			OF BUILDING		The street of the street	t,
			(x\$0000000x)		المالية المستقطية المعروبية المعروبية المعروبية المعروبية المعروبية المعروبية المعروبية المعروبية المعروبية ال	• ** *
			(NAXCE370) 		77 (464) (*44) 44 (54) (54) (54) 2004 (55) (54)	
			CONTROL FOR		The same of the sa	iv Ladi – vieter
	•		The same of the	· ·	The state of the s	
					The state of the s	
			17 17 41 2 27 K A		41 to 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
			3-13	~	The first of the second and the second	
			Company of the control of the contro	19	Section of the Sectio	-d
	•			•	1 800 B 3 3	
			BARRELL		with the passer of	3 J
			AP CARAC		and the second second	
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			Carite Car		And The Control of	
			(9),73,411,114		and the second of the second o	.*
			- N.201 - 3		Section 1	
			*2545 * * * **			
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			100 577 10 1/4		เรียบ อัน โดยเมื่อใช้ไป	
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) TOWILL

BIT-RATE ALLOCATION SIGNAL HEADER FILE

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6445
                                                          SAMPLE HEADER FILE
                                                                     for
       H.221 BIT-RATE ALLOCATION SIGNALS
6450: DEVICE-MODES AND CAPABILITIES
          The second of the second of
         This source module contains header information that with provide a reconfiction of bit-rate allocation signal commands (BAS bodes) used to indicate device modes, and capabilities according to the H.320 (specifically H.221) Recommendation. These lists are intended for illustrative purposes, and are incomplete. An implementation of a VMCS would need
6455
         to define a complete list, and then preserve the exact numerical identity of these consults for all implementations intended for interoperability within the same operating environment, virtualization routines in the VL (of VCO implementations) must translate
  these device-independent versions of H.221, modes and capabilities into the usual BAS codes formats specified by the manufacture recommendation for the transmission.
6460
                                                                                   Section 8
   PROOF (SOURCE FILE OF MAN BASCODES H)
         CONTRACTOR OF THE PROPERTY OF STREET OF THE PROGRAMMING NOTES
                                                                                   er continu
         This module commens only Cot + cource code and sunctired commens using the "II" notation to denote comments (in addition to
6465 the Friedrich Comment portion using 1991 h. proposed and
                                                                                     15 %
                                                                                    أتأ وهلد وللمها
                                                                                    gedary"
          BIT-RATE ALLOCATION SIGNALS TO INDICATE DEVICE
6470
          CAPABILITIES (DEVICE MODE CAPABILITIES)
                                                                                  20 C . 25 W.
                                                                      🕳 🌖 - Saura (Linainia)
                                                                             marthalthuri
                                                                                                                           ///TRANSFER RATE CAPABILITIES
         BASCODE CapTransferRate64
                                                             ■ 0x80000001g rapp! Azircately
                                                             - 0x80000002; r 33.3% -....rarsa
6475
         BASCODE CapTransferRate2x64
                                                             = 0x80000003; TOTALE ATTEND
         BASCODE CapTransferRate3x64
                                                                               John Little Kong T
         BASCODE CapTransferRate4x64
                                                             = 0x80000004;
                                                                             The state of the state of
         BASCODE CapTransferRate5x64
                                                             - 0x80000005;
                                                             = 0x80000006: =56€ = 35± 25 ±
         BASCODE CapTransferRate6x64
6480
                                                             = 0x80000007; | z dalaz result in the last
         BASCODE CapTransferRate384
         BASCODE CapTransferRate2x384
                                                             = 0x80000008(/ 4/2/#/####***/
                                                                               ar ten Stef ger!
         BASCODE CapTransferRate3x384
                                                             = 0x80000009;
         BASCODE CapTransferRate4x384
                                                             - Ox8000000a (₹*5200.4.2 525 % 255 ).
         BASCODE CapTransferRate5x384
                                                             - 0x8000000b:
6485
         BASCODE CapTransferRateL536
                                                             - 0x8000000c;
         BASCODE CapTransferRate1920
                                                             - 0x8000000d;
         BASCODE CapTransferRate128
                                                             = 0x8000000e:
         BASCODE CapTransferRateL92
                                                             = 0x80000000f:
         BASCODE CapTransferRate256
                                                             - 0x80000010;
6490
         BASCODE CapTransferRate512
                                                             = 0x80000020:
         BASCODE CapTransferRate768
                                                             = 0x80000030;
         BASCODE CapTransferRate1152
                                                             = 0x80000040;
         BASCODE CapTransferRate1472
                                                             - 0x80000050:
         BASCODE CapRestrict
                                                             = 0x80000060
6495
          BASCODE CapComposite6B
                                                             = 0x80000070
         //AUDIO CAPABILITIES
         BASCODE CapAudioALaw
                                                             = 0x80000080
         BASCODE CapAudioULaw
                                                             - 0x80000090:
6500
          BASCODE CapAudioG722 64

    □x800000a0-

         BASCODE CapAudioG722_48
                                                             = 0x800000b0:
         BASCODE CapAudioG728
                                                             = 0x800000c0
         BASCODE CapAudioISO
                                                             = 0x8000000d0;
6505
         //VIDEO CAPABILITIES
         BASCODE CapVideoQCIF1
                                                             = 0x800000e0;
         BASCODE CapVideoQCIF2
                                                             = 0x800000f0:
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	BASCODE CapVideoQCIF3	0x80000100;	Section of the sectio
	BASEODE CapVideoQCIF4	I A TO COME A BARAGO	ងនៅជាតាក្សិកាក្សានាក្រីនក្
6510	BASCODE CapVideoCIFI	A CONTRACTOR AND A CONT	ed more address of the ter
	BASCODE CapVideoCIF2	TOTAL PROPERTY.	 2 3 4 5 6 6 7 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7
	BASCODE CapVideoCIF3	A DEPONDED	ಸ ಕಿತ್ರಾಪಕ್ಷಿಕೆ ಚಿತ್ರಗಳ
	BASCODE CapVideoCIF4	77-0-0000000	the matches and the control of the c
	BASCODE CapVideo Improved	13k Garage Ox80000700;	รายเกราะที่สะตัดเกิดเกาะเกิด
6515	BASCODE CapVideoISO		
	BASCODE CapVideoComposite	- Vx80000900	ந்து நடித்து இருந்து இ இருந்து இருந்து இருந்த
		THICK SERVICE STORY	Past 845 - 25 st. Lits B. 18 7-97 1
	//DMAGE CAPABILITIES	•	THE STOLEN GROW
4500	BASCODE CapSuntilPictureLowSpeedD	ata 1 4 7 7 0x80000x00	gangan rung i membagian angangkan perungkan men
6520	BASCODE CapSuntilPictureHighSpeedD	tata w Overconnisco.	
	BASCODE CapSuntilPictureSpatialMode	= 0-20000-00	्रेक्ष्म या अराज्युत हो।
	BASCODE CapSuntilPictureProgressive!	Mode Overnoomo	ดิสตสมติ สติสเทรีกระสติ มีถึง มีข้อ ค
	BASCUDE CapSumtilPictureArithmetick	fode - n-pronners.	wasang ringg broke but I'v d
4838	BASCODE CapSuntilPictureH261	D-BOOKS	Amelati Rominian Tabe to Lette World
6525	BASCODE CapGrouplifax		Alasa, szászlas a Misszál diszállásásásásásásásásásásásásásásásásásá
	BASCODE CapGroup4Fax	Dx80007000	1. 12000 The education of the contract of the
	10.000	, a, r , r , y gad at 1 r , a a a a	Abbit i informer United A G GOTA Ab
	//LOW SPEED DATA CAPABILITIES	(FX007001±0 *	FASCUEST Michigansteeds Late 12 Anni
6530	BASCODE CaptowSpeedDataVariable	500C000 (x 0x80003000;	8420mA (941) (1 (66) 3 1007AS
w.s.	BASCODE CapterSpeedDate100		State of the State of Tenant Control of the State of the
	BASCODE Capter Speed Data 1200	0x80005000;	Malabas Transact Shelv BCC -184
	BASCODE Caplar Speed Date (800	= 0x80005000; = 0x80006000;	MO INCOME COME TO TELE
	BASCODE CaplowSquadDeta5400		Selection of the select
6535	BASCODE CapliouspeedDeta6000 BASCODE CapliouspeedDeta6000	0x80007000;	And and the construction of the Control
	BASCODE Cept.owspeedData14400		THE SECTION CONTRACTOR STREET
	BASCODE Capter Speed Datalek	= 0x8000x000;	allementary the of 1001011
	BASCODE CaplouspoodData24K	0x8000c000:	Mar Sulever Lake a EC 2001/2
	BASCODE CaptonspeedDetallK	0x8000c000;	FOR STAN COLUMN TOWN MODEL TO SEE
6540	BASCODE CaplewSpeedDate40K	0x8000a000;	IN TURNS OF ON THE RESIDEN
	BASCODE Capital Squad Data 48 K	= 0x8000f000;	The and the was the second To list to
	BASCODE CaplewSpeedData56K	= 0x80000000;	
	BASCODE CaplewSpeedData62K	□ 0π80010000:	19 07 (1907)
	BASCODE CaplewSpeedDate64K	- 0x80070000; 0x80030000;	THE PARK FLAT CONTROL
6545		1.750 > C	di jagera karawa 1967 Niloda
	// HIGH SPEED DATA CAPABILITIES		a process and read to 2000 to 1
	BASCODE CapHighSpoodData64K	0x80040000:	in a large was a contract of
	BASCODE CapHighSpeedDate128K	0x80050000;	Carally over the Danger
	BASCODE CaphighSpeedData192K	= 0x80060000	Death Maria to the But De LA
6550	BASCODE CapHighSpeedDate256K		what had a second of the first
	BASCODE CaphighSpeedData320K	= 0x80070000; = 0x80080000;	ger I frank kare og II 📑 🦠
	BASCODE CapHighSecodDeta384K	0x80090000;	and the state of the state of the
	BASCODE CopHighSpeedData512K		i de la compania de La compania de la co
	BASCODE CapHighSpeedData768K		Park at see
6555	BASCODE CapHighSpeedData1152K		The American Company of the American
	BASCODE CapHighSpeedData1536K	= Orannen.	అంది. మూల్లో చారి కార్లు కార్లు కార్లు మేక్క్ మార్గాన్ కార్లు కార్లు కార్లు కార్లు
	BASCODE CapHighSpeedData	- 0x800e0000	in the second of
	***	15-12-13 (A.104-13) 46	TORKS MET HERE William William States
6560	//APPLICATION CAPABILITIES	And the second	1975 a ben 2 \$ 6 2 2
0300	BASCODE CapEncryption	= 0x800f0000;	
	BASCODE CapGraphicsCursor	= 0x80100000;	
	BASCODE CapVI20LowSpeedData	VABUZUUUU):	
	BASCODE CapVI20HighSpeedData	= 0x80300000;	
6565	/AMILTOON TO COLUMN		3 K W 1 / 2
	/MULTIPOINT CONTROL CAPABILITIE		ு அதிரு இரியின் இ
	BASCODE CapSetConfFocus	= OrROGOOOO	s classic in classical and
	BASCODE CapQueryConffocus	· · · · · · · · · · · · · · · · · · ·	many a second of PRE LT and
•	BASCODE CapSetConfChair		1
6570	BASCODE CapQueryConfChair	— UNBUMUUUI	the second second
	BASCODE CapAddStation	- VX80400004	
	BASCODE CapRemoveStation	= 0x80400005	and the second of the second o
	BASCODE CapBroadcastAudio BASCODE CapBroadcastVideo	Ox#ΩκΩΩΩΩκ.	gyn Digwyddiaeth gynthaeth Agnithaeth y 14 Bhilliaith
	BASCODE Capitrondensi Video BASCODE Capitrondensi Data	≠ 0x80400007	Same and the second second
		₩ 0x80400008;	

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Zinger wes
LYZZine er
6575
                             BASCODE CapGetNumStations
                                                                                                                                                          0x80400004;
                             BASCODE CapGetStationList
                             BASCODE CapGelStationCaps
                                                                                                                                                                                                                                                                               54 32
                             BASCODE CapGetStationAudio
                                                                                                                                                                                                                                                                                 #1, s
                             BASCODE CapGetStationVideo
                                                                                                                                                            70038040000e:
                                                                                                                                                                                                                                                                                17...
6580
                             BASCODE CapGetStationData
                                                                                                                                                            058040000f:
                             BASCODE CapGetStationIdentity
                                                                                                                                                                                                                                                                    1.14
                                                                                                                                                                                                                                                                                 5.2 4.5
                                                                                                                                                                   350000 B
                                   BIT-RATE ALLOCATION SIGNALS TO SET DEVICE MODES
                                                                                                                                                                                                                                                                  Stampfield and are asset
                                                                                                                                                                                                                                                                                     e true to the
                                   (DEVICE MODE COMMANDS)
6585
                                                                                                                                                          Constitution and the second se
                                                                                                                                                           // TRANSFER RATE MODES
                              BASCODE ModeTransferRate64
6590
                              BASCODE ModeTransferRate2x64
                              BASCODE ModeTransferRate3x64
                                                                                                                                                                                                                                                                                                                                                                                      . ..
                              BASCODE ModeTransferRate4x64
                              BASCODE ModeTransferRate5x64
                              BASCODE ModeTransferRate6x64
                                                                                                                                                           - 0x1000007;
0x1000008;
0x1000009;
0x10000006;
                                                                                                                                                                                                                                                 ZHITLER OF A SHE COTTE TO US
                              BASCODE ModeTransferRate384
                                                                                                                                                                                       = 0x10000007;
6595
                                                                                                                                                                                                                                              Manager of a particular and house the first of the
                              BASCODE ModeTransferRate2x384
                                                                                                                                                                                                                                                          BASCODE ModeTransferRate3x384
                              BASCODE ModeTransferRate4x38
                              BASCODE ModeTransferRate5x384
  6600
                              BASCODE ModeTransferRate1536
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                              BASCODE ModeTransferRate1920
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                               BASCODE ModeTransferRate128
                                                                                                                                                                                                                                                       Commission Commission Commission (and to)
                               BASCODE ModeTransferRate192
                                                                                                                                                                                                                                                             A committee of the committee of the committee of
                               BASCODE ModeTransferRate256
                                                                                                                                                                                                                                                             Balance Land Lynn 117 17 47
                               BASCODE ModeTransferRate512
  6605
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                               BASCODE ModeTransferRate768
                                                                                                                                                                                                                                                             Rishard sometime in all Islands.
                                                                                                                                                                                                                                                                                                                                                                                     100
                               BASCODE ModeTransferRatel152
                                                                                                                                                                                                                                                             1871 bente Alexand to and Jacob 2.2
                               BASCODE ModeTransferRate1472
                                                                                                                                                                                                                                                                THE CLASSIC CONTRACTOR OF SECTION 1.
                                                                                                                                                                08 85 ° 6
  6610
                               // AUDIO MODES
                                                                                                                                                              0x00000001;
= 0x000000002;
                                                                                                                                                                                                                                                               Si SCOLE Comment of the State of the
                                                                                                                                                                                                                                                              EAS WAY CHARLEST SHOWN STONE
                               BASCODE ModeAudioOff 1
                                                                                                                                                                                                                                                                                                                                                                                    ....
                                BASCODE ModeAudioOff 2
                                                                                                                                                                                         - 0x00000003;
                               BASCODE ModeAudioALaw_1
                                                                                                                                                                                                                                                 NETT CHEAT OF A FIND CHEMP 2 NO. 1
                                                                                                                                                                                                                                                            let be east military and the contract
                                                                                                                                                                            = 0x00000004;
= 0x00000005;
                                BASCODE ModeAudioALaw 2
                                                                                                                                                              = 0x0000005;

0x0000006;

0x0000009;

0x0000000a;

0x000000b;

0x000000c;

0x000000c;

0x000000c;

0x0000000c;
                                                                                                                                                                                                                                                         BAS MEE Copping range Day all del
  6615
                                BASCODE ModeAudioALaw_3
                                BASCODE ModeAudioULaw I
                                                                                                                                                                                                                                                         SERVICE Commission of the State of the State
                                                                                                                                                                                                                                                          I SECONDE CAPIL PALAMONIMENTESSE
                                BASCODE ModeAudioULaw_2
                                                                                                                                                                                                                                                         BALLADS CHARLES SANGER ALES
                                BASCODE ModeAudioULaw_3
                                                                                                                                                                                                                                                           BARDING ENGINEER CONTRACTOR
                                BASCODE ModeAudioG722_1
                                                                                                                                                                                                                                                          DASCOUR Configurations No. 12 LDK
   6620
                                 BASCODE ModeAudioG722_2
                                                                                                                                                                                                                                                         BASTODE Leadinghiemed Departure
                                 BASCODE ModeAudioG722_3
                                                                                                                                                                                                                                                       MINISTER Capping Speed Jacobs C
                                                                                                                                                                                                                                                                                                                                                                                        253
                                 BASCODE ModeAudio40K
                                                                                                                                                                                                                                                       E COUT I Casiff of sweethers 1556 B
EASONS Capter on speech to a
                                 BASCODE ModeAudio32K
                                 BASCODE ModeAudio24K
    6625
                                 BASCODE ModeAudio&K
                                                                                                                                                                                                                                                                     A COMMENT OF THE PARTY OF THE ACCOUNT.
                                 BASCODE ModeAudio64K
                                                                                                                                                                                          = 0x00000010;
                                                                                                                                                                 - 0x00000020;
- 0x00000030;
- 0x00000040;
- 0x00000050;
                                                                                                                                                                                                                                                         A COURT CAP AND THE COMMENTS OF THE COMMENTS O
                                 BASCODE ModeAudio128K
                                 BASCODE ModeAudio192K
                                 BASCODE ModeAudio256K
    6630
                                 BASCODE ModeAudio384K
                                                                                                                                                                                                                                                       DENSE OF TOTAL DISTORDED LIEBER
                                 // VIDEO MODES
                                                                                                                                                                       = 0=20000001:
= 0=20000002;
                                                                                                                                                                                                                                                                              no a Principal de Carrier La Carr
                                 BASCODE ModeVideoOff
                                                                                                                                                                                                                                                                         water made 2 25 July
                                 BASCODE ModeVideoH261
                                                                                                                                                                    - 0.20000003:
                                                                                                                                                                                                                                                                               "mail" on " or last. Tell 32.50
    6635
                                 BASCODE ModeVideoImproved
                                                                                                                                                                   0±20000004:
= 0±20000005:
                                                                                                                                                                                                                                                                         WINDS SE CARDINATE WARDEN
                                 BASCODE ModeVideoLSO
                                 BASCODE ModeVideoComposite
                                                                                                                                                                                                                                                                                     TASCOUR CLOSA & COVERNO
                                                                                                                                                                      0.2000006:
                                 BASCODE ModeVideoCIF
                                                                                                                                                                                                                                                                                notaceon over Pope S. ECC 72. No.
                                                                                                                                                                 0x20000006;
0x20000007;
= 0x20000008;
= 0x20000009;
                                                                                                                                                                                                                                                                         VANCES OF MARKET - 1770 3
                                 BASCODE ModeVideoOCIF
                                                                                                                                                                                                                                                                          Floti mer dik Taal I., William
Billiam Lendon I. (1997 bil
    6640
                                 BASCODE ModeVideo4CIF
                                   BASCODE ModeVideoCIF240
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BASCODE ModeVideoFreeze-11 2 5450 ATTA #022000000:
                                                BASCODE ModeVideoUnfreeze
                                                                                                                                                                                                = 0x2000000b;
                                                BASCODE Mode Video Fast Update with the search and a searce 22000000c;
        6645
                                                BASCODE Mode Video Doc On REST SEE SEE A SEE SEE SEE CARDOCOCCE: 20 1 6 1
                                                BASCODE ModeVideoDocOff
                                                BASCODE ModeVideoDocOff

BASCODE ModeVideoSpiliCo, PLATTER AVIOTE LES TROBESOCOOPE:

- TENTE DE L'ANDRES DE L'ANDR
                                                BASCODE Mode VideoSplitOff
                                                                                                                                                                                                                                                 = 0x20000010;
                                                                                                                                                                                                                  TOATER
          6650
                                               //IMAGE MODES
 6650 //MAGE MODES

BASCODE ModelSOSuntilPictureLowSpeedData = 0x2C006020;

BASCODE ModelSOSuntilPictureHighSpeedData = 0x2C000030;
   BASCODE Models OSpatilificture High Speed Data = 0x200000000
BASCODE ModeHighSpeedDataFax 5 grat on norm # 6x26000050 need we strain a country of the second seco
   //LOW SPEED DATA MODES
                                                                                                                                                                                                                                                                                                                                                                           (35,50)
                                              BASCODE ModeLowSpeedDataOff
                                                                                                                                                                                                                                                ~ 0x30000001; ·
        6660
                                              BASCODE ModeLowSpeedData300 2EAN OVER .000000002:
       BASCODE Model awSpeedData1200 gazza anternacio 0x30000003; vs/2 comete w w D year tracerou eschatt & 0 comete w BASCODE Model awSpeedData4800 - 0x30000004: "T ' mass pounded attenue of ox 3 section 20 comete w w D year and anternacion of ox 3 section 20 comete w w D year and anternacion of ox 3 section 20 comete w w D year and anternacion of ox 3 section 20 comete w w D year and anternacion of oxide and a section oxide and a se

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                                            BASCODE Model.owSpeedDate8000 conflicted at mosts 0x30008006; o moli stream 2 1000 on or conf 2 codemic o
       6665
                                             BASCODE Medel owspeed Date 9600,
                                            BASCODE ModeLowSpeedData14400
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                                            BASCODE Model ow Speed Deta 24K 193000 1950 190230000002:
                                          KMINI D. Bendin
       6670
                                            BASCODE ModeLowSpeedDate40K
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                                            BASCODE Model.owSpeedData48K
                                                                                                                                                                                                                                              - 0x3000000at
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                                            BASCODE ModeLowSpeedDate56K
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                                                                                                                                                                                                                                             - 0x3000000e;
                                           BASCODE ModeLowSpeedData62K
                                                                                                                                                                                                                                            = 0x3000000f:
                                           BASCODE ModeLowSpeedData64K
                                                                                                                                                                                                                                              = 0x30000010;
       6675
                                           BASCODE ModeLowSpeedDataVariable
                                                                                                                                                                                                                                              = 0x30000020;
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                                           // HIGH SPEED DATA MODES
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                                          BASCODE ModeHighSpeedDataOff
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                                          BASCODE ModeHighSpeedDate64K
                                                                                                                                                                                                                                              - 0x30000040;
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      6680
                                           BASCODE ModeHighSpeedData128K
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                                          BASCODE ModeHighSpeedData256K
                                                                                                                                                                                                                                           = 0x30000070:
                                          BASCODE ModeHighSpeedData320K
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                                          BASCODE ModeHighSpeedDuta384K
                                                                                                                                                                                                                                           = 0x30000090;
      6685
                                          BASCODE ModeHighSpeedDateS12K was a signal of the Oz30000CeO; surprise signal to the order of the comments of 
                                          BASCODE ModeHighSpeedData768K
                                         BASCODE ModeHighSpeedData1152K
                                          BASCODE ModeRighSpeedDataVariable
                                                                                                                                                                                                                                           = 0x300000e0;
      6690
                                         // APPLICATION MODES
                                         BASCODE ModeNeutral
                                                                                                                                                                                                                                           = 0x20000060;
                                         BASCODE ModeEncryptionOn
                                                                                                                                                                                                                                             - 0x20000070;
                                                                                                                                                                                                                                                                                                                                       2 4 4 60 5 1 2 4 1
                                         BASCODE ModeEncryptionOff
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    6695
                                         BASCODE ModeAudioLoopback
                                                                                                                                                                                                                                          - 0x20000090:
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                                                                                                                                                                                                                                          = 0x200000x0;
= 0x200000b0;
                                         BASCODE ModeRestrictOn
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                                         BASCODE ModeRestrictOff
                                                                                                                                                                                                                                           = 0x200000c0;
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                                         BASCODE ModeDigitalLoopback
                                                                                                                                                                                                                                           - 0x200000d0:
    6700
                                         BASCODE Model.oopbackOff
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                                         BASCODE ModeComposite6BOn are w.c. 0 ... as 0x20000000;
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                                        BASCODE ModeFaxOnLowSpeedData 0x20000300:
   6705
                                         BASCODE ModeFaxOpHighSpeedData and in the action 200000400;
                                       BASCODE ModeV120LowSpeedData 225.3 225.4 0x20000500; 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 225.4 2
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PHYSICAL DEVICE INTERFACE HEADER FILE,.

	III I SICAL DI	SVICE A		AVER PILE,	e Gu	
6710	/*====================================		i (kû)(lû) > Ferresana			
		PHYS	CAL DEVICE INTER	FACE HEADER FILE		
			as Catalo » for	ಸಿಡಿವರ್ ಆಡ <i>್</i>	CO. #	
		VIRTUAL		CONNECTION SYSTEMS	10. 10. 10. 10. 10. 10. 10. 10. 10. 10.	
6715		•	1,050,08 ± 10 0		750	
6/13	This source module commer b	ender informat	ABSTRA(or Signature To	` Dep
	This source module contains h System (VMCS) implementati	on if the soe	cial: kermaniy by mi	c server components in any	Virtualized Multimedia	Connection
	indicates to the compiler that	a VCO is being	ur built, and the class.	VI Thurs be defined in full	If this symbol is not	thus fule, it
	indicates that a VCO client app	plicapon is bein	ur built, and only the her	ider files needed to access m	empers of class VIN	
6720	virtual device control override	member functi	ons in class "PDP", need	t be considered during the sc	ftware build process. I	n this way
	both the server (VCO) and cl	ient componen	is of the VMCS Jenve	symbolic definitions front th	e sume source code h	ase, but no
	vendor-specific (device-depend	ient) code is at	any time visible to the d	evice-indépéndent client appl	ications.	•
	(SOURCE FILE: PDI.H)		•	MCON A	LYKE GIBBLES O	
6725	101111		CONSTRUCTO		Altern ECODE of	
			PROGRAMMIN		SANTODE Macelan	
	This module contains only (to the standard C comment not	C++ source co			to denote comments ()	n addition
•	to the standard C comment not	acon using "/	* MANAGERIA	this a Comme	A Latin St. Hall Section 19	
		•	30000000000 B	Collegentation of the second	CASSILLE MOSSA	· • • • • • • • • • • • • • • • • • • •
6730	2. Symbols defined in the VDI	Software Cons	roi leverface are shown	in boldface type below.	es languagem value un communication de la comm	בוינ! פוינ!
						/
	#include < OS.H > #include < BASCODES.H	_	2037/ Include oper	aung system kind user tritema ate allocation signal milicatio	CE API	
	/include < MCLH >		A CAN WARRENGE DICTO	la Control Interface device c	NS	
6735	#unclude < VDLH>		cor//slackuda defu	nition for the VDF and all les	rigenivel, classes	
			18 (3 / C) =	\$ 50 mest 1970 - 50 mest 196 - 19	3. The state of th	
	/* = = = = = = = = = = = = = = = = = = =		NOT SOUTH	· 建酸一次化 7000 91 =	race wall and Color of the	
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		# = # */	Let State Walk in the	A STALL OF TAXABLE PARTY.	nulumon produces. Herbours 2018/2018	
6740	alaan MT		1. 大陆"走走"。	क्षां स्टब्स्ट है बाद कर दिस्कार पर्योप स्टब्स स्टब्स्ट से बाद कर दिस्कार पर्योप	en albeit (EET Land	17.10
	class VL: public VDI { protected:		a premary	WELVE THE FREE V. 12771 16		•
	VL(const char* in	·File)·	•	25.40 Pa 40	ing gerelings	
	, E4-0-121 C1111 _ L1	M 1107.	No. and Delay	The way and a more than	probability of Children	
6745	virtual *VL();			Sq.s.k.z. HUZomoqibili	a stable of Title	
			J. C. & D. W. L. S. C.	dat was larged a	gurdanta E. A. A. a.	•
	virtual const chare	GetClassName		Selection of the select	putera t INCOL t	
			SOUND OF SERVICE	Trail Bell Superior College Street College Street	men koe juloo da e Koeman doocease	
6750	#ifdef _VCO_BUILD		Committee of the commit	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	anternal accounts	
01.50	/9 Vender meril			implement more derived PDI	Les 19 1 ECC 24-1	. 52
	members and	defined here T	hese funkcióni mica mac	تنا تكافئا فلنستناسك فنخ فنند سيسم المهر ساسي	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	format data ar	nd control devi	ES IN A WAY CONSISSENCE	with those necessary to best in	Harvey RCCCCA	
	the overrides	the pure virt	usi device control memb	ers in the VD[intrium at	WATER BOOKS	
6755	•/		44 CFED -	along of a แป้เลยอย่าน	Puder Wild District	والإستان
	#endif				N APPLICATION NO.	
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	/*=========		38,377 2 3 4 4 4	17 T.	Car 1031 3 2 3 3 4	
6760	DECLARATION FOR CLAS	S PDI	7087214 + 30705724	The Designation	18 . St. 1227 . 6 10 10 1. 3	
		/	ing the second s	1. 1. 4. 2.4.21	garita prin i Radio Filipi	1.13
	-			a section and ten	A Carre To March	
	class PDI: public VL (10 12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	र <u>भई≷क</u> ाई	Life Sold O'TO'BLIE	
	privale:			The James	was better to Make	
6765			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	. , which is	er in what FCCIP- a	1010
	// PDI DATA STR		10 to 10 10 10 to	POS Symile	endende indner i	
	chare	pLabel;	Company of the second	VCO label string	an imperior distance of	
	char* DEVCAPS	pVersion: Local:	The Perm	VCO warmen arring \$15,722,3850	the contract of the section of the	
6770	int	nModes:	property of H March	device capabilities listing or of entries in Modes to Ca	24.20 101 Jani 1924 E	
	int	nCaps;	// // // // Nicole	er of entries in "Capa to Mod	ha rici sizi	1.113
	XREF	Caps[MaxC	IDSI: // "Caps	to Modes " aref itsp-44" har	The second of the second of the	
	XREF	Modes(Max	Modes): 0.10// Mode	s to Caps* xrefdister (a.g., f)	diginal topotal	
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6775	come in	Dearcez:	Wimber of encapsulated	devices and a final t
. 0//3	const DEVICE	Des(WINTDEANERS)!	// Encapsulated device chi	rie.
	ini -	nMco;	// Number of made and	
•	int	nAudioÖbi:	// Number of media ctrl o	pieces currently available
	im	nVidetiOhilli andirl and		
_	int	nimageObj:	// Number of monon-vide	objects
6780	int)	nDamObj	// Number of objects	
	const char*			•
		bysenia Tabelli	// Proto array of pirs to m	edia cirl object labels
	WCO BINDING	pmediaHinding.	// Pir to linked list of curr	ent media curi object buidings
لا يستوي	HMCO* 275211	phMco:	// Per to linked list of all a	variable media ctri objects :
4304	The second HMCO Control 200 2 THE CONTROL OF THE SECOND	hMco[MaxMcoType].	// Default media ceri object	t handles
	4 marine some fill the	medan e in manny seems	the Little Grades call oples	r tignifica (Sametrates p. Ja. 1997)
Linguista and and	PDI(const chair In	iFile)រូបបានប្រើក្រុមនេះជាប្រក	man a state of the state of the	o trons alive seem of other over the plant of those free or
	ing santartaga di settas	ရေ ၈၈ ကက်လေးသညာ မိုင်နှင့်	in a paraga mengangan ing	To Butt the tracer can be seen
	virtual *PDI();			•
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6790	Vimusi const chart C	GerClassName() (rensm = P		
	· · · · · · · · · · · · · · · · · · ·	ercrassivanie() (tentu - b	P6**	*
1.004.005	RESULTCODE De	Selection of the select	n unutile base Name washing to s	The second of the second of the
	WALKE VIKIDAL	OVERRIDES FOR VOI D	EVICE CONTROL MEMR	FRS
1.2.31.35.21.41	RESULTCODE De	vOpen(BOOL);		Service Control to the control of th
	'KESULTCUDE De	rClose(BOOL);		where the contract of the cont
67 9 5				
	RESULTCODE DE	Competi CALLPARAM	E STATIONS BOOK	c M.BJID tawa
	RESULTCODE Des	MultiConnect ATT TIC	A.STATIONS, BOOL);	
	RESID TOODE D	Disconnect(int.BOOL);	ALLOP, CALLPARAMA, S	TATION.BOOL.BOOL);"
	PEGT TCOPE De	DSCOMECU MC.BOOL);	2.5% 82	HICK SEATION FOR OUT
6800	PEGIT TOOPE DE	ABSWER CALLPARAME		Sale Figure Carrie and the part of the par
	RESULTCODE Des	/Abert();		
	RESULTCODE Des	rGetCallinfo(CALLPAR)	AM&):	· · · · · · · · · · · · · · · · · · ·
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	PRST TCORE D	V		
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	ACESULT CODE Dev	RevData(BYTE°, int, HM	CO.BOOL.BOOL):	74 GFT, 4 3 1
6810				
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	14000	- *************************************	وريوس يديدون مناهم والمستورون	•
	MCOPARAM& Dev	'GetMco('HMCO');" ""	AND MATTER TO BE MADE A STREET	
*	PLMCU DevGetMon	Handle(const char*)-		
	HMCO DevGetMcol	Handle (MCO TYPE);		1
			*	
6820	RESULTCODE Dev	SetDefaultMen(MCO_T3	ZDVC	•
	RESULTCORE De-	SerDeferrence MCO T	FE.const char*);	
	ICASOLI CODE DET	SetDefaultMco(MCO TY	(PE.HMCO);	
	DBG=			•
	RESULTCODE Dev	SetConfig(CONFIGPAR.	AM&);	
£20.5	RESULTCODE Dev	GetConfig(CONFIGPAR	AM&):	
6825		-		
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6835	im passas sictivos	DWORD EVENTC	oge, DWORD Param);	
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GENERAL, VMCS, HEADER FILE

and related to the :naM 6840 GÉNERAL HEADER ETTE for VIRTUALIZED MULTIMEDIA CONNECTION SYSTEMS स्त्रात स्थापन स्यापन स्थापन स्यापन स्थापन This source module contains header information used by both client and segrer components in any Virtualized Multimedia 6845 Connection System: (VMCS) implementation. In this way, both the server (VCO) and client components of the VMCS derive symbolic definitions from the same source code base. This class serves as a capstone to the VCO class structure; so as to present every VCO client with exactly the same member functions accessible from the same class type. The addition of implementation-6850 specific members to this class can proceed without effecting VCO interoperability or standard VMCS documentation, COURCE FILE: VCO.H) PROGRAMMING NOTES This module contains only C++ source code and structured comments using the All imprayon to depose comments (in addition to the standard C comment node of 6855 SEAST TOTAL SECTION BOOKS TO THE PROPERTY OF THE SMILL MORE DRIVEN BOOKS TO THE SMILL MORE DR 2500 :: 13002.780 787 / Include definition (or the PDI and all less derived classes #include < PDI.H > 6860 PETER VETER Des Mishellen and State Unit 194 ON 2001 1 DECLARATION FOR CLASS VCO WILLEY STATE SHOWING CASH CASH WE AND IN CHEST TOURS OF SHIP A percentagation and managed and anticities of 6865 class VCO: public PDI (public CSS (LDC) and CWS (CST) TO TO COLUMN TO FINANCE CONTROL NEWS SUPERIOR SCHOOL COLUMN ESCULPTIONS FOR FRANCISCUS CONTROLLS OF STRUCTURES VCO(const char* _iniFile); CANNO 1,30 diodican adi antita madimene antocci, tere 6870 THE ROLL OF THE PRINTING WHERE SOME THEFE virtual "VCO(): organical in 6875 PRIVALE: Implementation-specific members go here, including members to support the against or ...Dynamic link library implementationAccess restriction for VCO Clients ...Safeguards against re-entrancy and multi-instantiation supplied a participation of the control of the contro 6880 or along states rethreshing the sole of 1991. **}**: HELDO Ver George sides and LLOC 1994 h. i delle i delle inerkelladhente i 1800 i 174 d'elen esan p 1900 delle i inekaledelmekter 1800 (i 1777 delle) p FERTLY OUR DOCKED HOUSE IN THE TRANSPORT TOUR SHAPE CONTRACT WAS A CONSTRUCT OF THE SHAPE STATE WAS A SHARE THE SHE WATER STATES A COLOR grant and conservation of the succession of the property of the AND THE STREET OF THE CONTRACTOR OF THE CONTRACTOR OF THE CAND The result of Original Assemble of Telephone in the English Conin the present of the RETAIL LIPTURE transfer and amount out when

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SAMPLE VCO CLIENT APPLICATION

6885 SAMPLE VIRTUAL CONNECTION OBJECT CLIENT APPLICATION VIRTUALIZED MULTIMEDIA CONNECTION SYSTEMS 1.054.0 11.56 6890 A BETTACT OF THE PARTY OF THE P This source module contains code to create a simple VCO client application that establishes a concurrent media ctri connectivity session. If the selected VCO is found to be capable of concerned media cirl connections, it connects to a default remote season whose numbers are stored in an initialization file. After successful connection, all incoming signals from the remote station are looped back to it; incoming audio and video signals from the remote station are monitored locally. For clarity, it is assumed that 6895 both the local and remote stations are capable of these operations, and the remote station is actively transmitting audio, video, and dam signals to the local station. Requisite error checking has omitted for most operations. 1. 72 (SOURCE FILE, A SE YCOCLIENT, GEP 1017) A 55 W .96Flauer Ta 6900 course matura Proper i PROGRAMMING NOTES 2014 (16014) EXTENTIONS 1. This module contains only C+ of source code and structured comments using the "//" notation to denote comments (in addition to the standard C comment notation using " /* "/"). ositis idelo elela ella en handivedad ellase. COV del dipatino i tel diodicina a nueval i letado-6905 2. Details related to operating system API's, and the specifics of the user interface, have been omitted for clarity. 3. Symbols defined in the VDI Software Control Interface are shown in boldface type below. 6910 (CO.H > // Include standard VCO Software Control Interface definition NONBLOCK 0 // Used to set calls to non-blocking mode (immediate return) Ammail Doesel च द्वाप्तवस् च्यादाश्रद्ध Preprocessor macro to create "thunk" that enables the VCO to call Notifier Receiver Object class members 6915 transparently, in order to noutly them that an event has taken place that has triggered the signal. NOTIFICATION_RECEIVER_MEMBER(_Class, _Member) \ #define The month of the tree to the at the second of the second o 6920 DWORD Parami.
DWORD Pirami.
STATION pSmooh.
HNOTIFIER hNonfier) (\ 1,300 6925 Class* pNRO: \ remirm (pNRO ? pNRO-> Membert [id. Pararmi. Param2. pStation. hNotifier): 0); A-. } entitle 4 incompletion and any month on the interior of a property of a property 6930 Preprocessor macro used to specify the internal "thunk" procedure name to the VCO, such as when creating NOTIFICATION_PROC(_Class,_Member) Notifier##_Class##_Member may ... renter and \$ 1.74. 41.6 ing the second of the second o wad in a consider on the section of a section of its

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6935
                                                                                                                                 VCO Conferencing Object Class used by chem application to establish automatic media cirl loopback
                                                                                                                                 connection to remote station. Logs all relevent connection and media control trace information to a file. Also,
                                                                                                                                all trace information emanating from the VCO itself-relating to the operations of the VCO, are displayed (in
                                                                                                                                 real-time) on the console display.
                                                                                               class ConfObject
                             6940
                                                                                                                                                                                                                                                                                                                                                            ED AN TERMOR LATERS !
                                                                                                                                 public:
                                                                                                                                                                                                                                                                                                                                                                 AND THE PROPERTY OF THE PARTY O
                                                                                                                                                                     BOOL ISAcuve:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     // True if the current session is acrive
                               6945
                                                                                                                                                                                                                                                                                                                                     CONTRACTOR WILLT WITCH CONTRACTOR
                                                                                                                                                                  Il Constructor to establish session with remote station (initiate call, then set loopback)
                                                                                                                                                                     ConfObject(VCO& _Vco, char* _p[Tracoffile);).
6950 1 COLOR CONTROL EX POSITIONAL OF POSITIONAL OF STATE AND ACTUAL OF STATE OF STA
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                  # Pur to filespec for session trace file 20 2000
                                6955
                                                                                                                                                                       char*
                                                                                                                                                                                                                                            pTraceFile;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           1000
                                                                                                                                                                        HNOTIFIER hNotifyNotifiergove propositi Handle for event notification signal
                                          HNOTTIFER hDisplay honfiere amounted Waltanderdorsconsole message display signal and accommendation of the control of the cont
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            gereux abaumae anameses a crubessa ma p
                                                                                                                                                                        // Notifier handling procedure for connection and VCO events transmitted to this client class object
                               6960
                                                                                                                                   DWORD NotifyProc(EVENT and DWORD Parami,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              1.
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                                                                                                               Notifier handling procedure to display the VCO text stream transmitted to this client class object of the contract of the cont
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                                                                                                                                     Create 'thunks' for all the VCO event handling procedures used to direct trigger notifications (and text
                                6975
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                325
                                                                                                                                      messages) to members in the "ConfObject" nonfication receives object (NRO) A DOSTO AND
                                                                                                  NOTIFICATION RECEIVER MEMBER( ConfObject, NotifyProc);
                                                                                                    NOTIFICATION_RECEIVER_MEMBER(,ConfObject, DisplayProc);
                                6980
                                                                                                  ConfObject::ConfObject(VCO&_Vco, char*_pTraceFile) {
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          C. C. St. 1 Phospill
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         in tennest to Chair Tollety commit
                                                                                                                                                                                                                                                                                                                                                                                                  Property Lancett
                                                                                                                                                                          Determine if constructed VCO supports device modes necessary to a conference
                                                                                                                                                                            where audio, video, and binary information will be concurrently shared.
                                   6985
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                                                                                                                                                                                                                                                                                                 No. 2 T. St. Company and St. Company and Company and Company of the St. Company and St. Company and Co
                                                                                                                                        IsActive
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                                                                                                                                        pTraceFile
                                                                                                                                                                                                                                                                                                                             = pTraceFile;
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                                                                                                                                        bNonfyNonfier
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                                   6990
                                                                                                                                         bDisplayNorifier
                                                                                                                                                                                                                                                                                                                            - 0:
                                                                                                                                        BOOL CanDoAudio
                                                                                                                                                                                                                                                                                                                             = 0:
                                                                                                                                         BOOL CanDoVideo
                                                                                                                                                                                                                                                                                                                             - 0:
                                                                                                                                         BOOL CanDoData
                                                                                                                                                                                                                                                                                                                             = 0:
                                                                                                                                        DWORD EventMask
                                                                                                                                                                                                                                                                                                                             = NewRevMode | NewXmtMode | NewVcoState | NewCallState:
                                                                                                                                         DEVCAPS&LocalCaps
                                   6995
                                                                                                                                                                                                                                                                                                                             = Vco.GetDeviceParam().Caps.Local:
```

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77 3774
                                                                                                                                                                                                                                                                                                                                                                      Printed Courses a Care Printed
                                               for ( int i = 0; i < LocalCaps.mCaps; <math>i++) (
                                                                                           if (LocalCaps.Cap(i) = = CapVideoQCIFI) (A. ...
                                                                                                                                                                                                                                                                                                                   // Capable of video mode ?
     7000
                                                                                                                 CanDoVideo = 1;
                                                                                                                                                                                                                                                           Sances!
                                                                                           if (LocalCaps.Cap(i) == CapAudioALaw) 5.69
                                                                                                                                                                                                                                                                                                          Capable of audio mode ?
                                                                                                                CanDoAudio = 1;
                                                                                                                                                                                                                                                      r≥?co√id
                                                                                           if (LocalCaps.Cap(i) == CapHighSpeedData384K) // Capable of data mode 2
                                                                                                                CanDoData = 1;
    7005
                                                                                                                                                                                                                                                                                                                                                                                                                                  }
                                                                                        If media cut modes supported/open/VCO forusage:

setup notifications and then initialize devices 1000 and an analysis of the control of the c
    7010
                                                                   if (CanDoAudio && CanDoVideo && CanDoData) [
                                                                                          Vco. New Notifier to historify loutier, was no and
                                                                                                                                                                                                                                                                                                                                                                                                            St. Chit. Seed met
                                                                                                                                                                                NOTIFICATION PROC(Controject, Nauty 2700).
   7015
                                                                                                                                                                                 EventMask ):
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           . 17. - 1
                                                                                         Vco.EnableNotifier( hDisplayNotifier );
                                                                                                                                                                                                                                                                                                                                                                                                  Company of the second second
                                                                                                                                                                                                                                                                                                                                                                     A Clause Cyake Letterne
                                                                                                                                                                               hDisplayNedfier.
                                                                                          Vco.NewNotifier(
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Acting a new NOTIFICATION FROC(ConfObject, DisplayProc) in the process of the control of the cont
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   7070
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           314.5
                                                                                        // Activate the sending of VCO messages to the display console
                                                                          Vcc.AttachT.ataToNotifier(\DisplayNotifier)):

Vco.EnableNotifier(\DisplayNotifier)(\DisplayNotifier)):

Vco.EnableNotifier(\DisplayNotifier)(\DisplayNotifier)):
                                                                                                                                                                                                                                                                                                                                                                                                            randDer virtug t
   7025
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           145
                                                                                                                                                                                                                                                                                                                                                                                          the feet of the second
                                                                                        IsActive = 1:
                                                                                                                                                                                                                                                                     // Mark this cession as currently active \frac{1}{2} \frac{d^{2} - d^{2} N^{2}}{d^{2}}
                                                                                      Mco.Opent NONBLOCK.) and the Color of Installing and activate encapsulated sub-system.
 7030
                                                                                                                                                                                                                                              วันกุล คัญของแบบของ เพราะสี นี่นัก 10 ปละเภอ และคือจึงเผลที่
                                                                // Otherwise indicate failure to support operations: and exit.
                                                                 else printf( "Selected VCO incapable of concurrent media cirt session.\n" );
 7035
                                                                                                                                                                                                                                                                                                                                                                                                                                         Sec. 6.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          1525
                                          ConfObject:: "ConfObject() {
                                                                                                                                                                                                                                                                                                                                                                                                                             V - 616
                                                                 // If currently in call, hang it up and output message to trace file
     AMERICAN SERVER
 7040
                                                                                                                                                                                                                                                                      A state of the contract of the section of
                                                                Vco.Close();
                                                                                                                                                                                                                                                                  // Shundown the encapsulated sub-system (wait until complete)
 7045
                                             // Delete the notifications

and Vco. DeleteNotifier( hNotifyNotifier)) 18 industriated in the State of the S
                                                               // Delete the notifications
 7050
                                                               printf("VCO has been closed.\in");
                                        1
                                        DWORD ConfObject::DisplayProc( **EVENT** | **The Fig. 10 | **T
                                                                                                                                                                                                                                                                                                                                                Commercial of the
                                                                                                                                                                                                 DWORD
                                                                                                                                                                                                                                                               Parami,
7055
                                                                                                                                                                                                  DWORD
                                                                                                                                                                                                                                                                 Param2,
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                                                                                                                                                                                                                                                                                                                                   Some and the second
                                                                                                                                                                                      STATION* pSession.
HNOTIFIER hNotifier) (
                                                              printf( *%s\n*,(char*) Param2); at the console (sid output)
7060
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The state of the s

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DWORD ConfObject::NotifyProc(
                                                                                                                                                                  EVENT
                                                                                                                                                                                                                               Id.
                                                                                                                                                                                                                                                                     DWORD .
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                                                                                                            C 22 5 5
                                                                                                                                                                   DWORD
                                                                                                                                                                                                                               Param2.
                                                                                                                                                                                                                             pStation(1) ( milested a milested
7065
                                                                                                                                                                     STATION*
                                                                                                            T. Oak 25
                                                                                                                                                                    HNOTIFIER
                                                                                                                                                                                                                            hNonfier) (
                                                                                                                                                                                                                1 140 mon Capital confluences (4)
                                                     // Process all events that trigger notification
                                                      switch ( _ld ) {
7070
                                                      case NewRcvMode:
                                                                                                                                                                                                                            # Log-new-mode-set/by/remote-station (Fig. 1)
                                                                        a Part N
                                                                                                                                                                                                                                                                                                                                                                                                                                                              -:::
                                                                                                                                                                                                                                 ್ನು ಪ್ರಕರ್ಷದ ನಿರ್ವಹಣ್ಣ ಕೆ ಸ್ಟ್ರೀ ನಿರ್ಮ
7075
                                                      case NewXmtMode:
                                                                                                                                                                                                                           // Log new mode set by:local station and a company
                                                                        Vco. ToTerminal( "Mode Set by Local Station ( %s |\n")
                                                                                                                                  Vco.GetMedeLabel(BASCODE) Parami) );
                                                                                                                                                                                                                                                                                                                                                                                                                                                              250
                                                                                                                                                                                                                                                                         . iestalkurii
7080
                                                                                                                                                                                                                                                                the San meanther the cappage in
                                                      case New VenSteen:
                                                                                                                                                                                                                            // Handle new VCO state
                                                                                 rosch ( (usr)_Parami ) {
                                                                                                                                                                                                                                                                and the same of the
                                                                                                                                                                                                                                                                                                                                         manipula - attended
                                                                         CARE VOSCOSER:
                                                                                                                                                                                                                          // Call default remore station when opened
                                                                                           Voe. To Terminal Successful VCO open; Calling default remain station. \n^ );
                                                                                                                                                                                                                                                                                                                                                                                                                                                              d\hat{Q}_{i}^{\dagger}A
7085
                                                                                            Vos.Call (0, 0, NONBLOCK);
                                                                                                                                                                                                                                                     A magnethern Comit
                                                                                                                                                                                 Carrian (G. S.C. any in payagain OOM St. Section and all display the Log expr. NCO close exact then maint section inactive
                                                                                    e VesCless:
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                                                                                           Vca.ToTerminal("VCO has been closed.in") hit indice beyong the production of the control of the 
7090
                                                                                           Borna Hammerto, La versita etal Annal in
                                                                                           VenFalled:
VénFalled:
VénFalled:
VénFalled:
                                                                        case VenFalled:
                                                                                                                                                                                                                                                                                                                                                                                                                                                             1,550
7095
                                                                                             Ves.TeTerminal( "VCO Error Condition (%sl\n".
                                                                                                                                                      Vco.GetVcoState[_abel((int)_Paraml); must one, sold manded at with 60 of the control of the same of the control of the same of the same of the same of the same of the control of the same of the same
                                                                                            MACRYC = 0:
                                                                                                                                                                                                                                                                                                                                                                                                                                                              -- 17.2
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7100
                                                                                                                                                                                                                                                              in the thirt day and it has a been to be a set of
                                                                                                                                                                                                        Handle new VCO call state
                                                                                                                                                                                                                                                                                                                                                 CONTRACTOR OF CO
                                                       case NewCallState:
                                                                                                                                                               // Log disconnect of call; end output to trace fifth mark session inactive
                                                                         swetch ( (mx)_Param1) {
7105
                                                                          case Californianted:
                                                                                             Vco.TeTerminal( *Disconnected from Remote Station.\n*);
                                                                                              Vco.DetachTermFrom( TermODevFile );
                                                                                                                                                                                                                                                                                                                                                                              Ven Charte
                                                                                            Isacove = 0; Objective control of crease of $1
                                   10 1980 19 break;
  7110
                                                                                                                                                                                                                                                                                                                                     Oche in the the Table
                                                                          case CallConnecting:
                                                                                                                                                                                                                               // Begin trace file output; trace; sourt of call connection events
                                                                                               Vco.AttachTermToFile( pTraceFile);
                                                                                                                                                                                                                                                                                   reill Cantaffer fich hOlysischer jeige
                                                                                               Vco.ToTerminal( "Connecting To Remote Station.\n");
                                                                                                                                                                                                                                                                                                       to a percent consists of the state of
                                                                                                                                                                                                                                                                                                                                                                                                                                                                  . : 2
                                                                                              break:
  7115
                                                                           case CallConnected:
                                                                                                                                                                                                                               // Upon connection, trace formatted session information to file
                                                                                               Vco.ToTerminal( *Connected to Remote Station: Listing connection data \ntito); 10 (100) |
                                                                                                                                                                                                                                                                         14 (d)
                                                                                               Vco.ListCallParam();
                                                                                                                                                                                                                         n . 15
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   1.07
                                                                                               Vco.ListMCOs();
                                                                                                                                                                                                                          part!
                                                                                               Vco.ListConnectionCaps();
  7120
                                                                                                                                                                                                                    ARREST ATT
                                                                                                                                                                                                                                                              APPROVIOUS
                                                                                              // Loop audio, video, and data input signals back to remote station
                                                                                               Von.ToTerminal( *Seming up media ctrl toopback...\n* ); A fallet in 1997. The section of the sec
                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ¥ ."
                                                                         Vco Media Control (Audiolin, Attach To, AudioOut ):
  7125
                                                                                               Vco. Media Control( VideoIn. AttachTo, VideoOut );
                                                                                               Vco.MediaControl( Datain, AttachTo, DataOut );
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izi bemizi. . . dv £. . In A car catedia connectivity mangapurical 在第二十 casgriber corrected and carry, said commectifity yrogo 7130 Vco. Media Control (Audiola, Amach To, AudioDst): Vco. Media Control (Videoln, Attach To., Video Det); break; ado ၂၈ ရမ်းမှာ အေရောက်သောကြောင်း မြောက်သည်သည်။ ၁၈၂၈ ချောက်သည်း မောက်သည်။ ၁၈၂၈ ချောက်သည်။ default: . 7135 <u>(186</u>4)) are grainstudy a promo that here law come, exper default: organical section of the company theory is a symbolic configuration of the company of the compan symial member that bear consol 7140 lalicativa a go faguageras poetido grentid espais u VCO Client Application to call remote host. Loops back all audio, video, and data channels when connected:

writes trace of diagnostic session information to backing store in resistance. 7145 carak) merara interface including a plurality of valurat // Constuct a selected VCO ties enlicetion program for controllimminoverse www.wediter A # Constructions conferencing object Tulo bise ... wodeyedue formos -olyet MyClientApp ConfObject MyVco. "C:\VCO.LOG"); racco car is tasbasqubal ylerulgues ealed eaclimed?

"Block while the connectivity session is active" a sortige, while (MyCliemApp InActive): amb dargadha fordago sociyab soli o madro ing for a napoliky said bilanalithy of viropid Cursoffers no nh wiley: Control rembods while, control the conpolertwick invare gradue leastron ribber to Tallica i ba

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១០១៩២០១២៤ ម៉ាន់ប្រាស់ ស្ត្រីសាសស្រាយ ប្រុស្ធិ៍ សេចប្រាស់ ខ្លាំង ប្រាស់ ស្រី ប្រាស់ ស្ត្រី ស្ត

والمراجع والمالي

What is claimed is:

- 1. A multimedia connectivity program residing in computer readable memory, said connectivity program when executed on a computer providing to an application program multimedia connectivity services through a real-time multimedia device control subsystem including components selected from among a plurality of multimedia devices and a plurality of real-time multimedia protocol stacks, said program comprising:
- a single binary object encapsulating a virtual device interface and device control interface, said virtual device interface including a plurality of virtual methods that represent logical operations available to the application program for controlling said multimedia device control subsystem, said plurality of virtual functions being completely independent of the components within the device control subsystem, said device control interface mapping said plurality of virtual functions to physical control methods which control the components of the multimedia control subsystem.
- 2. The multimedia connectivity program of claim 1 wherein said device control interface comprises a plurality of media control objects which represent audiovisual and binary data streams associated with the components of the plurality of devices and/or real-time multimedia protocol stacks.
- 3. The multimedia connectivity program of claim 1 wherein the virtual device interface is configured to present a logical representation of the multimedia connectivity services provided by the connectivity program.

- 4.4 Thermultimedia connectivity program of claim 1 wherein said device control interface comprises a virtualization layer and a physical device interface layer, said virtualization layer located between said 5 virtual device interTace and said physical device interface, said physical device interface directly interfacing to the device control subsystem to provide a physical implementation of services requested by the application through the virtual device interface, said 10 virtualization layer residing between the virtual device sinterface and the physical device interface layer and configured to translated and map device control mechanisms employed byathe underlysnamultsmedla control sub-system to representations required by the virtual methods of the 15 virtual device interface. . MINTONE COLUBBIANTA
 - 5. The multimedia connectivity program of claim 2 wherein the plurality of media control objects provides the multimedia connectivity control program with a pool of media device signal resources.

មនិស្រាស់ជានិសាស បាន ឬគេរំគឺសាលាស្រែក ស ក្នុងសហភា សាលេខ និសាសាសារខេត្ត ប្រកាសរថយាការ

o wherein each of said plurality of media control objects is classified as at least one of type of the group consisting of an audio type, a video type, an image type, and a binary datastype.

isolace dives man mail: abridem laum, with veriller.

25 7. The multimedia connectivity program of claim 6 wherein each of said plurality of media control objects represents a signal from the group consisting of a signal from a remote station, a signal to a remote station, a signal from a local output device, and a signal to a local output device.

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- wherein operations performed on the phurality of median control objects by the physical device layer under control of the virtual device interface implements a logical software switching mechanism connecting incoming signal paths to outgoing signal paths.
- 9. The multimedia connectivity program of claim 1
 wherein the virtual device interface implements a
 plurality of public member functions, said virtual
 10 functions being a subset of those public member functions
 and wherein said plurality of public member functions
 represents all of the public member functions in the consistingle binary object that are accessible by the contains
 application program.

 $_{
m constant}$, which is the fourthead solved solved for the $_{
m constant}$

- 10. A computer programmed to provide to an application program multimedia connectivity services through a real-time multimedia device control subsystem including components selected from among a plurality of multimedia devices and a plurality of real-time multimedia protocol stacks, said programmed computer comprising:

 a virtual device interface and a device centrol interface, both of which are encapsulated in a single binary object, said virtual device interface including a
- binary object, said virtual device interface including a plurality of virtual methods that represent logical operations available to the application program for controlling said multimedia device control subsystem, said plurality of virtual functions being completely independent of the components within the device control subsystem, said device control interface mapping said plurality of virtual functions to physical control methods which control the components of the multimedia control subsystem.

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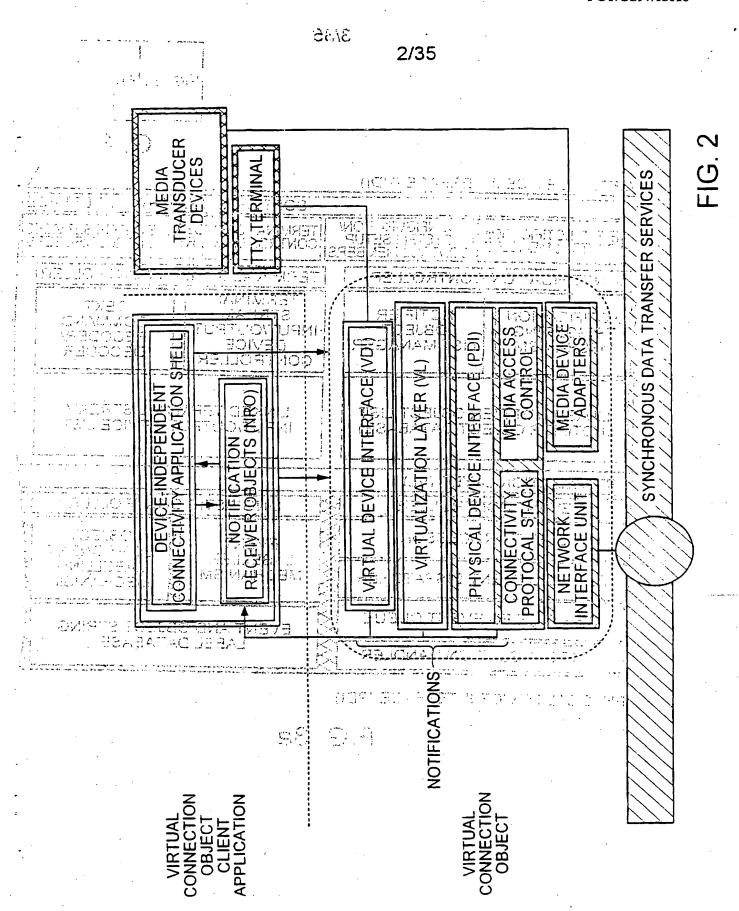
11. A computer implemented method of providing multimedia connectivity services through a real-time multimedia device control subsystem, the multimedia device control subsystem including components selected from among a plurality of multimedia devices and a plurality of real-time multimedia protocol stacks, said method comprising:

defining and supporting by computer implemented steps a virtual device interface; and

defining and supporting by computer implemented steps a device control interface, wherein both of said virtual device interface and said device control interface are encapsulated in a single binary object, said virtual device interface including a plurality of virtual methods that represent logical operations available to the application program for controlling said multimedia device control subsystem, said plurality of virtual functions being completely independent of the components within the device control subsystem, said device control interface mapping said plurality of virtual functions to physical control methods which control the components of the multimedia control subsystem.

1 3	FRIENDSHIP BETWEEN CLASSES	INDICATES FUNCTION CALL TO LESS DERIVED COURSE MEMBER	FUNCTION CALL SECTION OF THE MORE DERIVED SECTION OF THE MORE DERIVED SECTION OF THE MORE SECTION OF THE M	INDICATES FUNCTION CALL TO ANOTHER BINARY SOFTWARE OBJECT (CLASS)	DENOTES DEVICE- INDEPENDANT, REUSABLES SOFTWARE SYSTEM-COMPONENT	ASSIGNS LABEL OR SYMBOLIC ("LABEL", OR SYMBOLIC "LABEL", NAME TO "ENCLOSING OBJECT"
	INDICATES BASE CLASS FOR NON-VIRTUAL INHERITENCE	A CLASS FOR VIRTUAL OR PURE VIRTUAL INHERITENCE	INDICATES A: 3	INDICATES APURE INDICATES APURE INVIRTUAL OVERRIDE INVIRTUAL OVERRIDE INVIRTION EN MEMBER FUNCTION EN MEMBER	VIRTUALIZATION OR OPERATION-WAPPING SOFTWARE SYSTEM COMPONENT	DISCLOSES DETAILED INFORMATION WITH RESPECT TO ENCLOSING OBJECT
	DENOTES ENCAPSULATION BY BINARY SOFTWARE OBJECT	DENOTES A DESCREET BINARY SOFTWARE OBJECT COMPONENT	DENOTES LINKED LIST OF BINARY SOFTWARE OBJECTS	DENOTES A LINKED LIST OF LIKE DATA STRUCTURES	SPECIFIC HARDWARE OR SOFTWARE SYSTEM COMPONENT	INDICATES PHYSICAL CONNECTION SUPPORTING BI- DIRECTIONAL DATA FLOW

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FIG. 3a FIG. 3b

FIG. 3

VIRTUAL DEVICE INTERFACE (VDI)	
	SOFTWARE CONTROL INTERFACE
EVENT NOTIFICATION SYSTEM SETUP CONTROL MEMBERS	TERMINAL SERVICES NETWORK SERVICES CONTROL MEMBERS
NOTIFICATION CONTROLLER	TERMINAL STREAM CONTROLLER
NOTIFICATION NOTIFIER TRIGGERING OBJECT MECHANISM EIST MANAGER	TERMINAL TEXT STREAM COMMAND INPUT/OUTPUT RECODER/ DEVICE DECODER CONTROLLER DECODER
LINKED NOTIFIER OBJECT LIST (NOTIFIER OBJECT DATABASE)	LINKED TERMINAL STREAM INPUT/OUTPUT DEVICE LIST
VIRTUALIZATION LAYER (VL)	
EVENT CONTROLLER	LINGUISTIC CONTROLLER
EVENT PROCESSOR	EVENT COMPONENT
PERIODIC EVENT DISPATCHER	MECHANISM LABELLING MECHANISM
INFINITE FIFO EVENT QUEUE	EVENT AND OBJECT STRING LABEL DATABASE
CRITICAL SECTION HANDLER	LABEL DATABAGE
	•

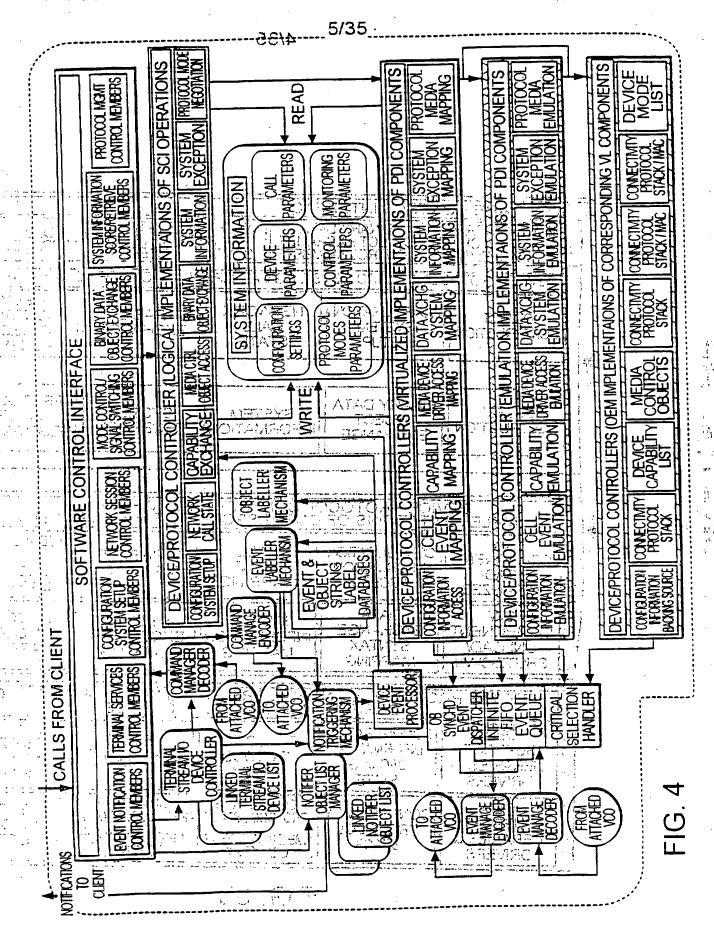
PHYSICAL DEVICE INTERFACE (PDI)

FIG. 3a

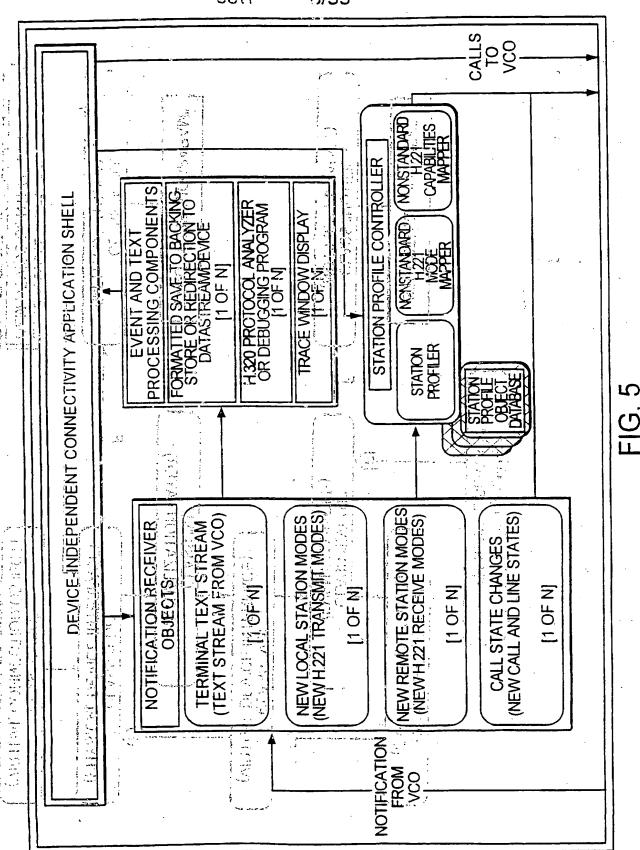
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	DEVICE/PROTOCO	L CONTROLLER	S (LOGICAL IMPEN	IENTAIONS OF SC	I OPERATIONS)
	OBJECT CONSTRUCTION	CNFIGURATION SYSTEM SETIUP	NETWORK CALL STATE	CAPABILITY EXCHANGE	MEDIA CONTROL OBJECT ACCESS
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	OBJECT DESTRUCTION	BINARY DATA OBJECT EXCHANGE	SYSTEM INFORMATION	SYSTEM RECEPTION	PROTOCOL MODE NEGOTIATION
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FIG. 3b

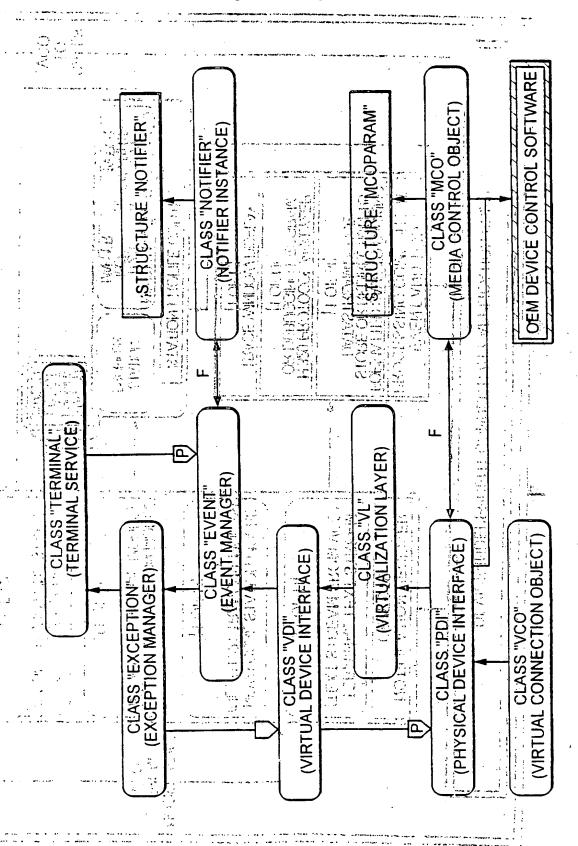


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	MODE	DESCRIPTION
:	DEBUG	OUTPUT DEBUG INFORMATION IN MESSAGE BOX
	USER	QUTPUT "USER" INFORMATION IN MESSAGE BOX
-	TERM	OUTPUT TEXT INFORMATION TO TERMINAL PORT
	NOTIFY	REPORT EXCEPTION BY TRIGGERING SIGNAL
	ABORT	ABORT CURRENT OPERATION AND DISABLE VCO

EXCEPTION HANDLING MODALITIES

FIG FA

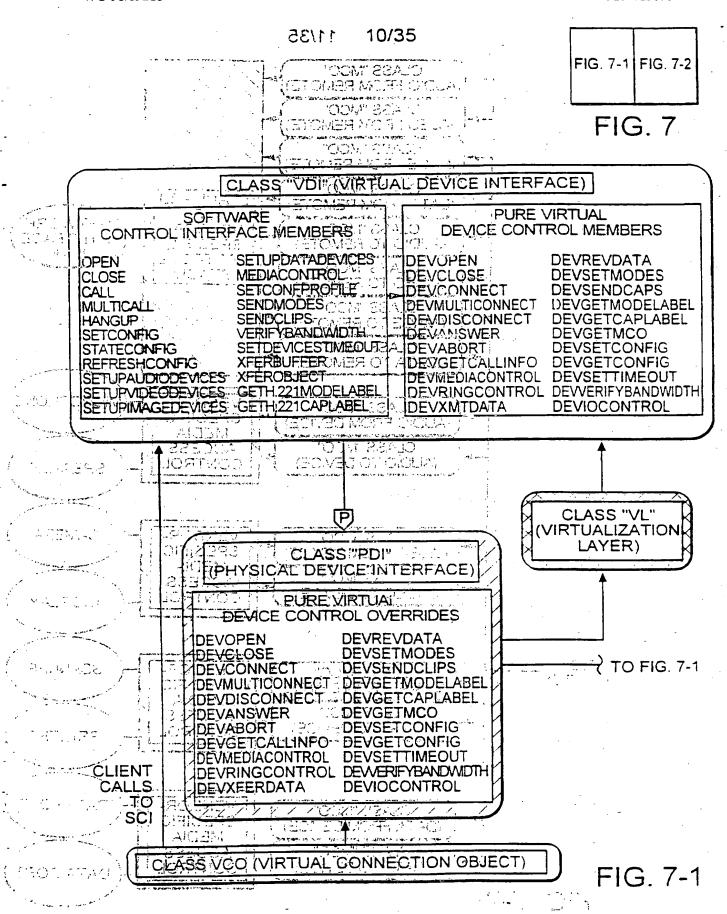
MODE	DESCRIPTION
DEVICE	SEND DEVICE CONTROL MESSAGES TO TERMINAL
NOTIFY	SEND NOTIFICATION MESSAGES TO TERMINAL
MEDIA	SEND MEDIA CONTROL OBJECT MESSAGES TO TERMINAL
CALL	SEND CALL CONTOL MESSAGES TO TERMINAL
LINE	SEND LINE STATE MESSAGES TO TEMINAL
PROTOCOL	SEND PROTOCOL MESSAGE TO TERMINAL

TRACE OUTPUT MODALITIES

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	ENERGE PO	NOTIFICATION
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-!!5	SWIPDI	CHANGE IN EMULATION STATUS
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NEWREFCOUNT	SWINDI	CHANGE IN VCO REFERENCE COUNTY
NEWDEVICEST	히	CHANGE IN MEDIA CONTROL DEVICE SAMEDS
NEWMCOFOCUS	SWINDI	
NEWLOCALCAPS	HW [MAC]	NEW LOCAL CAPABILITIES LIST 18 AVAILABLE
NEWREMOTECAPS	IM IM IM	NEW REMOTE CAPABILITES LIST IS AVAILABLE.
NEWRCVMODE	HWING	NEW MODE HAS BEEN SET SUCCESSFULL BY NEW OCAL STATION
NEWXMTMODE	HW MAC	
NEWREJMODE	IN MCI	MODE CHANGE ALLEMENT DI MODE STONE STONE SELECTIONS
NEWADIOSSETTING:	HW IMACI	EN L'ABLIONIMENT OF MENA MINIO OB IEOT SET
NEWVIDEOSETTING	HWIMAC	ESTABLISHMENT
NEWIMAGESETTING:	HWIMAC	ESTABLISHMENT OF ICENT MAGE COSES, SET
NEWDATASETTING	HWIN	MEN
NEWCALLSTATE	I I MININI	CHANGE IN CALL STATUS
سرر	HWININ	TV TV
NEWLINE2STATE	HWINIU VI	CHANGE IN LINE 2 STATUS
NEWCONFPROFILE	SWINDI	NEW CONFERENCE PROFILE SE L'SUCCESSONICELLE
NEWDISC STATUS		NEW DISCONNECTION STATUS, UALL HAS BEEN DISCONNECTED
NEWMULTICALLSTATE		CHANGE IN MULTIPOINT CALL STATION
NEWMULTICALLOP	ION MS	SUCCESSFUL COMPLETION OF MULITIPOINT OPERATION
NEWDATAXFERSTATE-	SWINDI	NEWIDATA OBJECT IRANSPER STATION
NEWRCVBUFFER	HW INC.	DATA BUFFER RECEIVED FROM REMOUT SIATION
NEWXMTBUFFER	EW [NIU]	DATA BUFFER SUCCESSFULLY IKANSFERRED TO REMOTE STATION
NEWRCVOBJECT	I HW MICE	DATA OBJECT RECEIVED FROM REMOTE STATION
NEWXMTOGJECT	HWINI	DATA OBJECT SUCCESSFULLY IRANSFERRED TO REMOTE STATION
NEWVCOSTATE	SWINDI	CHANGE IN VCO STATUS
NEWCURSORPOS	HW [NIC]	CHANGE IN GRAPHICS CURSOR POSITION
NEWTERMINPUT	SWMDII	
NEWTERMOUTPUT	SWMDI	TME
NEWRESULTCODE	SWMO	SCI CALL COMPLETED, RESULT CODE FROM OFFINATION AVAILABLE
	FIG	6C VCO EVENTS TRIGGERING NOTIFICATION

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SCANNER

PRINTER

DATA PORT

DATA PORT

VENDOR-

SPECIFIC

MEDIA

ACCESS

CONTROL

-VENDOR-

SPECIFIC

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CONTROL

MEDIA :

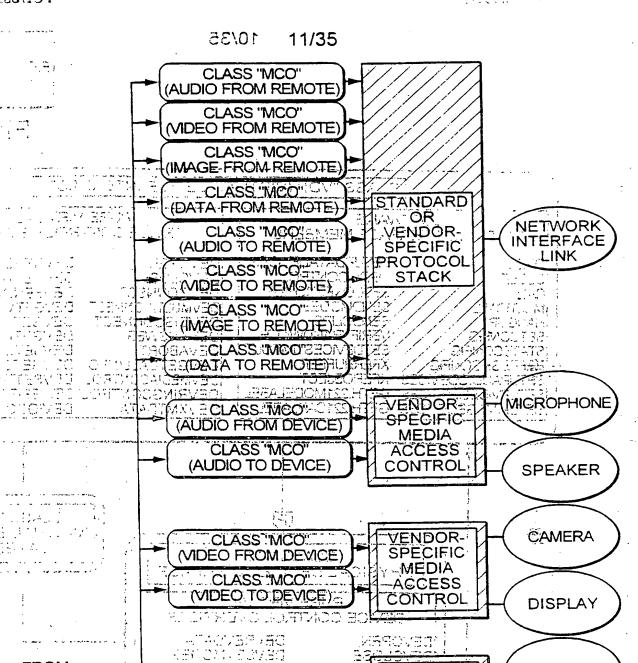


FIG. 7-2

ና FROM <u>ነ።</u>

FIG. 7-2

CLASS "MCO"

(IMAGE FROM DEVICE)

CLASS "MCO"

(IMAGE TO DEVICE)

CLASS "MCO"

(DATA FROM DEVICE)

--- CLASS "MCO"

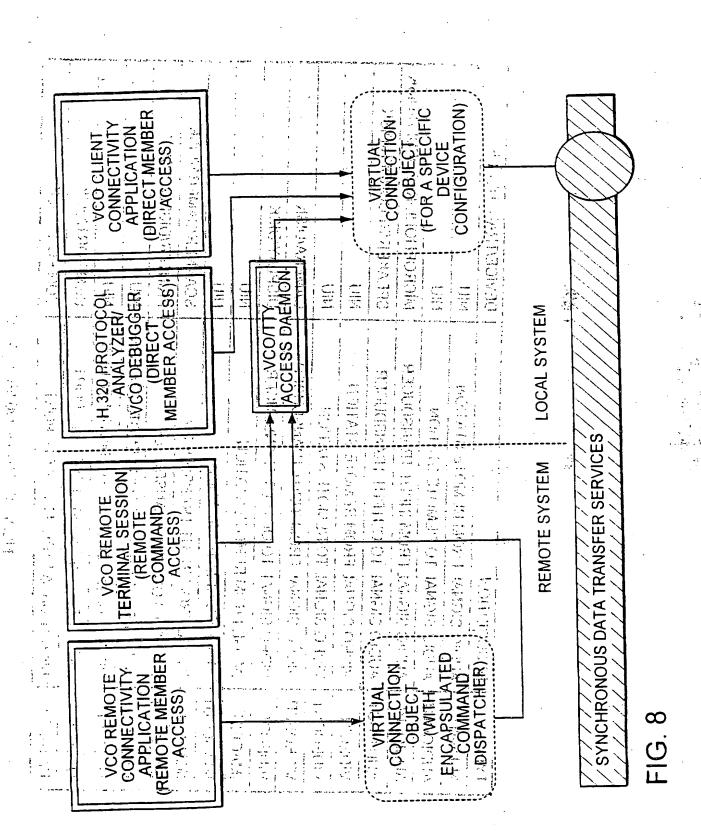
(DATA TO DEVICE)

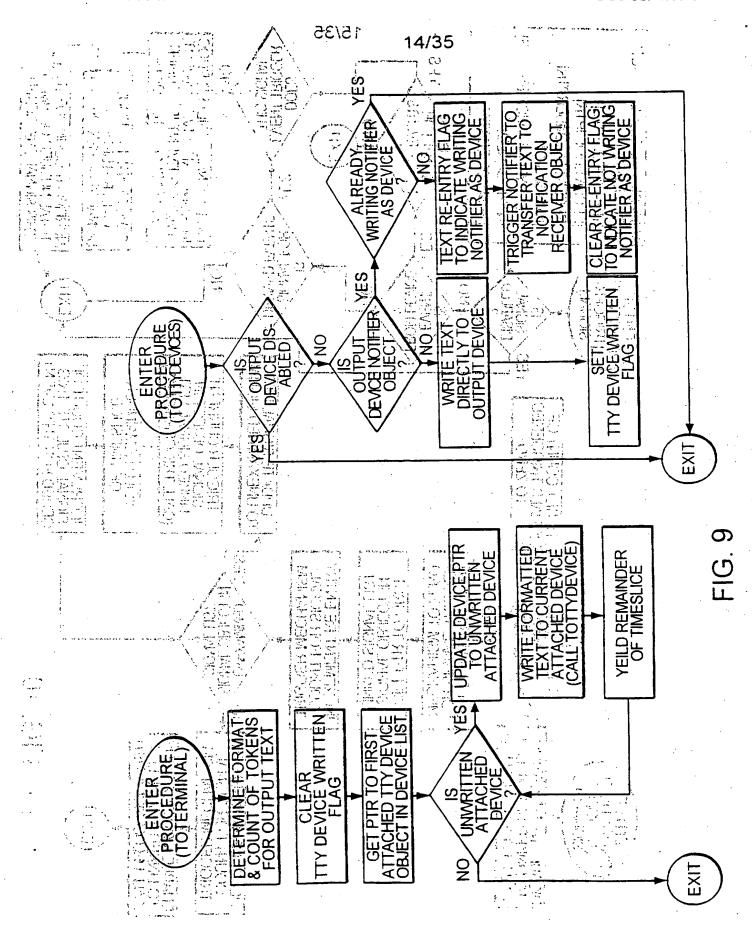
•		
TYPE	TYPE	DEVICE/TRANSDUCER
A! IDIOIN	AUDIO SIGNAL FROM REMOTE STATION	NIU (CONTACTOR OF
ALIDIONIE	AUDIO SIGNAL TO REMOTE STATION	NIU VIII VIII VIII VIII VIII VIII VIII V
AUDIOSRC	ALIDIOSRC AUDIO SIGNAL FROM INPUT TRANSDUCER	MICROPHONE/RECORDER/DISK
AUDIODST	AUDIO SIGNAL TO OUTPUT TRANSDUCER	SPEAKER/RECORDER/DI8K
VIDEOIN	VIDEO SIGNAL FROM REMOTE STATION	NIN
VIDEOOUT	VIDEO SIGNAL TO REMOTE STATION	NIC
VIDEOSCR	VIDEO SIGNAL FRÓM INPUT TRANSÓUCER	CAMERA/DISK
VIDEODST	VIDEO SIGNAL TO OUTPUT TRANSDUCERACION	DISPLAY/DISK
IMAGEIN	IMAGE FROM REMOTE STATION	MU
IMAGEOUT	IMAGE TO REMOTE STATION:	NIU
IMAGESRC.	IMAGE FROM INPUT TRANSDUCER	SCANNER/CAMERA/DISK
IMAGEDST	IMAGEDST ' IMAGE TO OUTPUT TRANSDUCER	PRINTER/DISPLAY/DISK
DATAIN	BINARY DATA STREAM FROM REMOTE STATION NIU	== -
DATAOUT	BINARY DATA STREAM TO REMOTE STATION NIU	DIN.
DATASCR	BINARY DATA STREAM FROM DATA PORT	COM PORT/DISK
DATADST	BINARY DATA STREAM TO DATA PORT	COM PORT/DISK

MEDIA CONTROL OBJECT TYPES

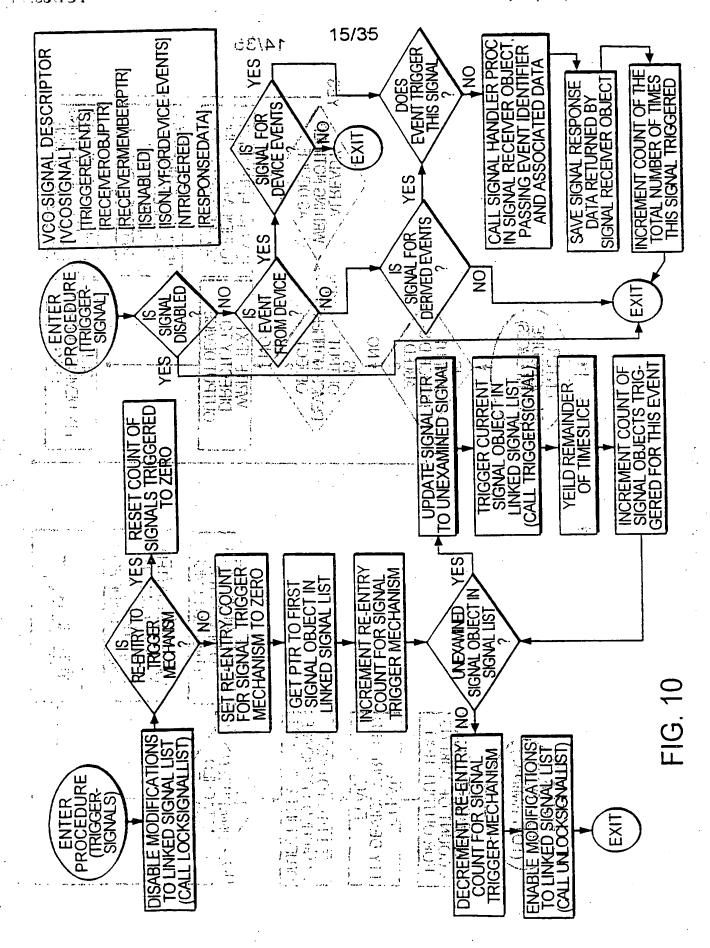
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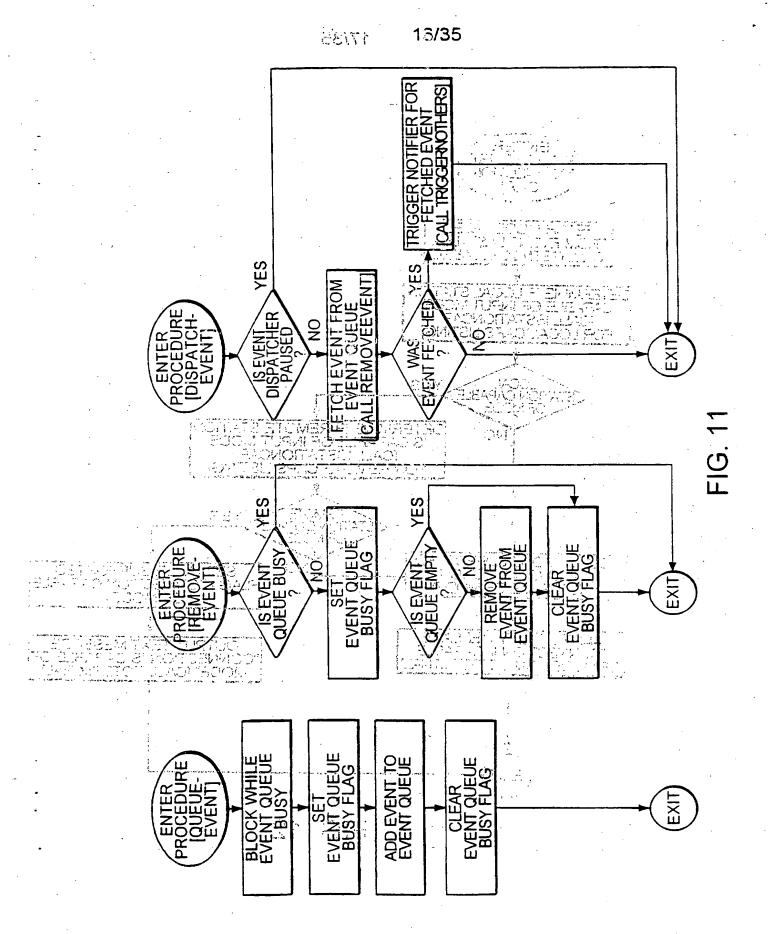
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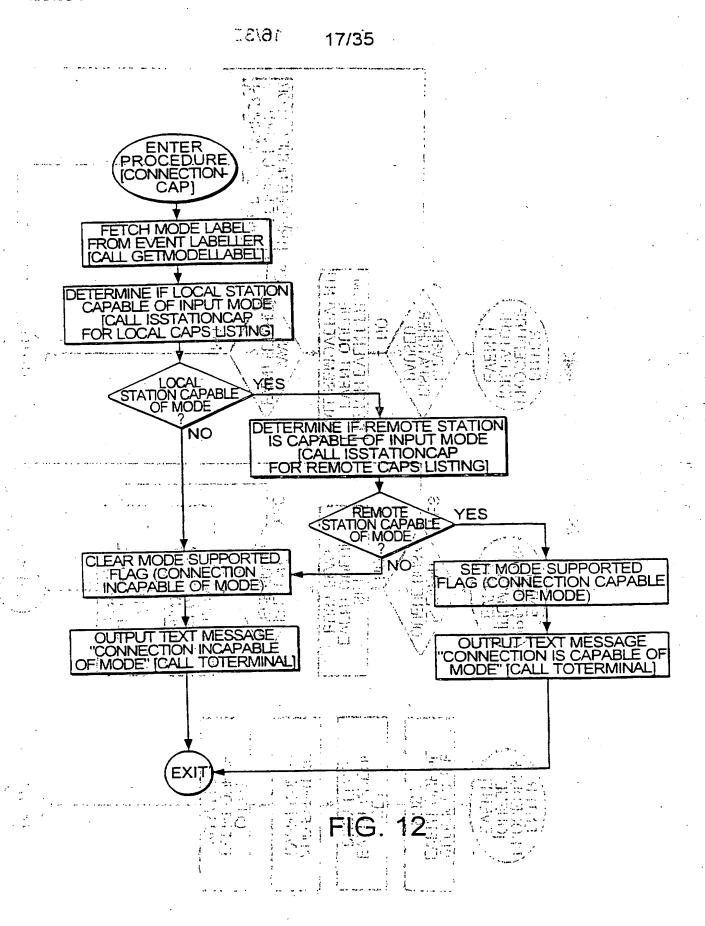


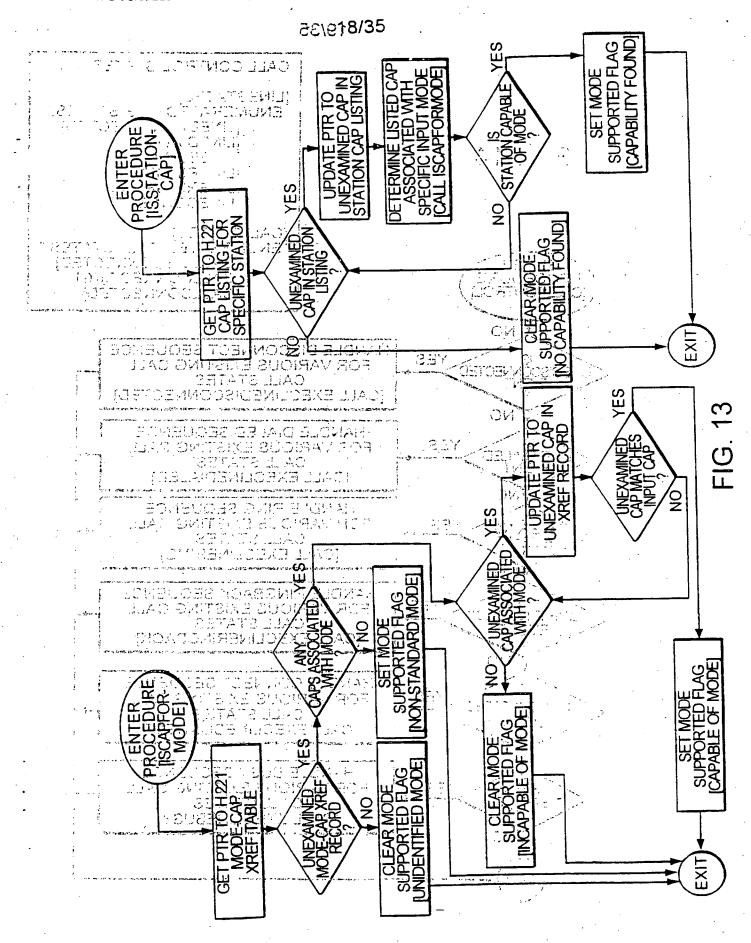
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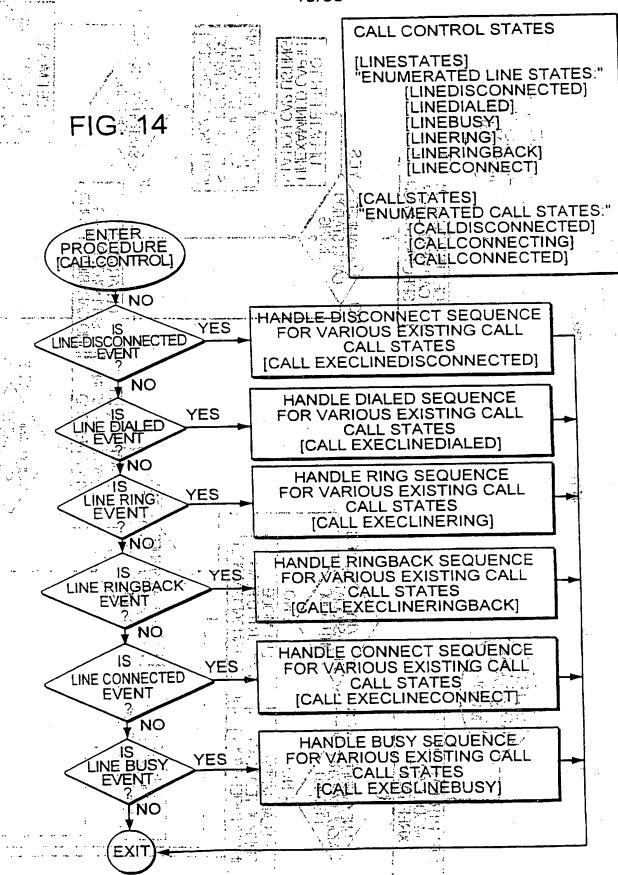
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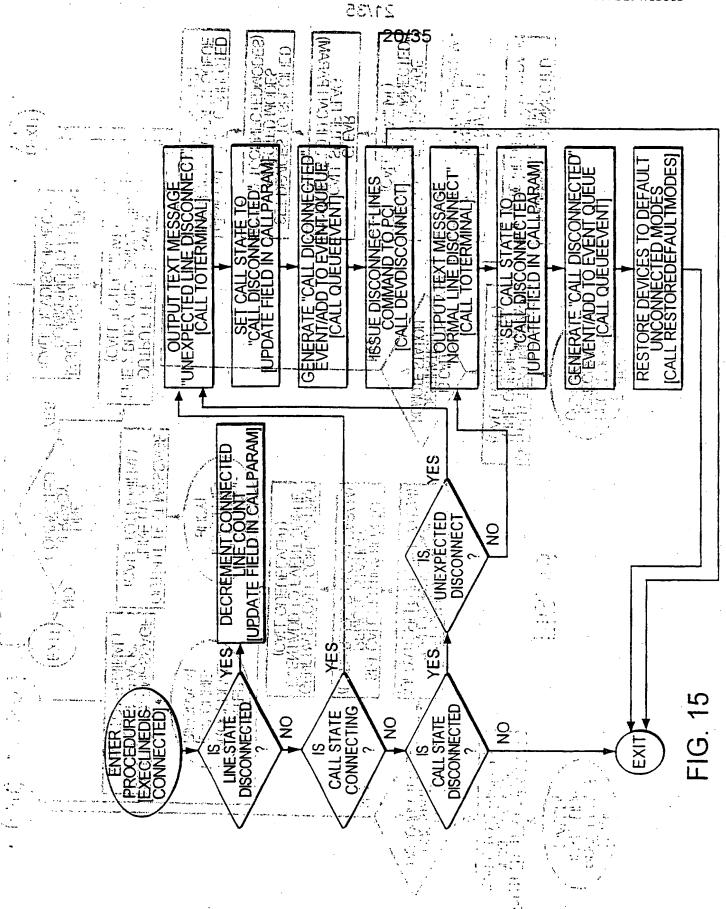


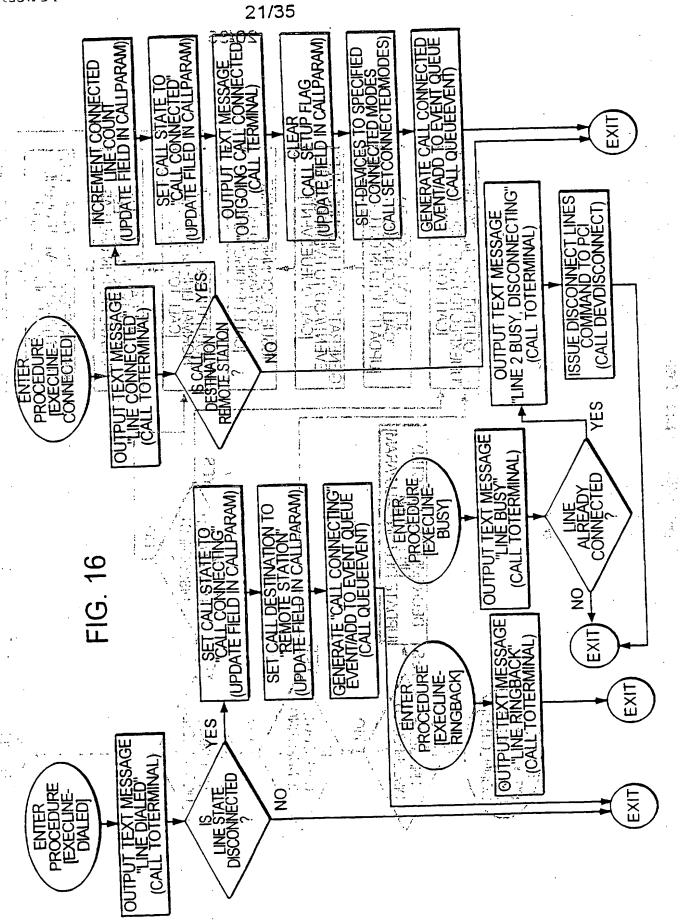


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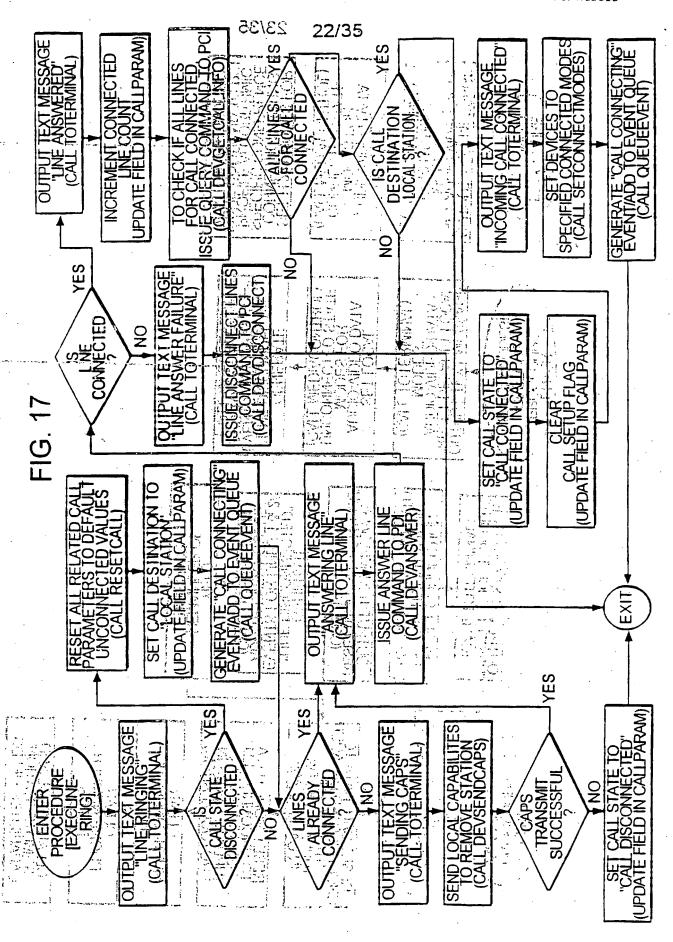
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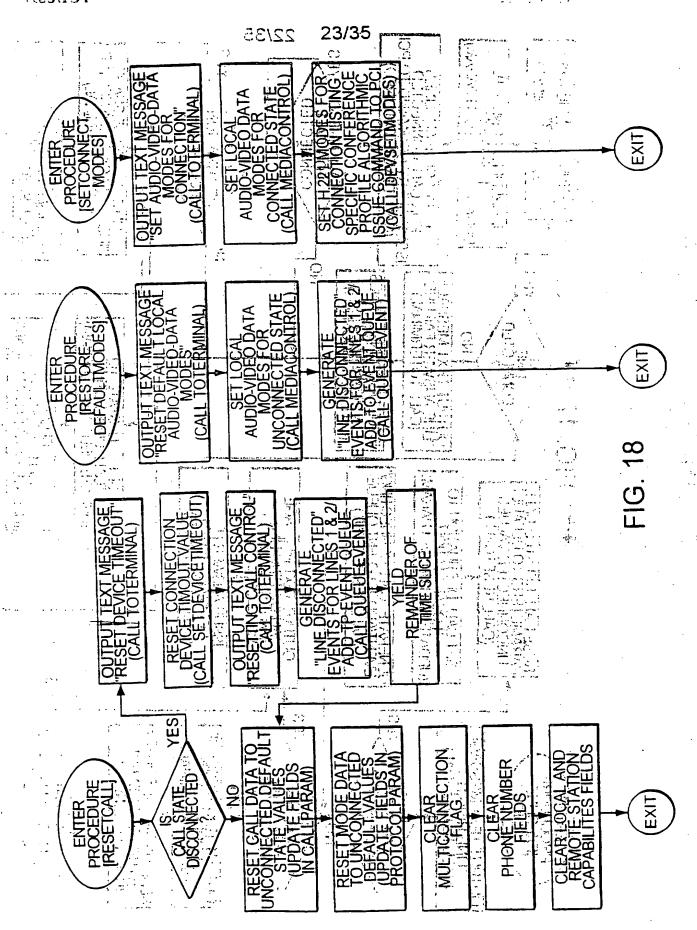


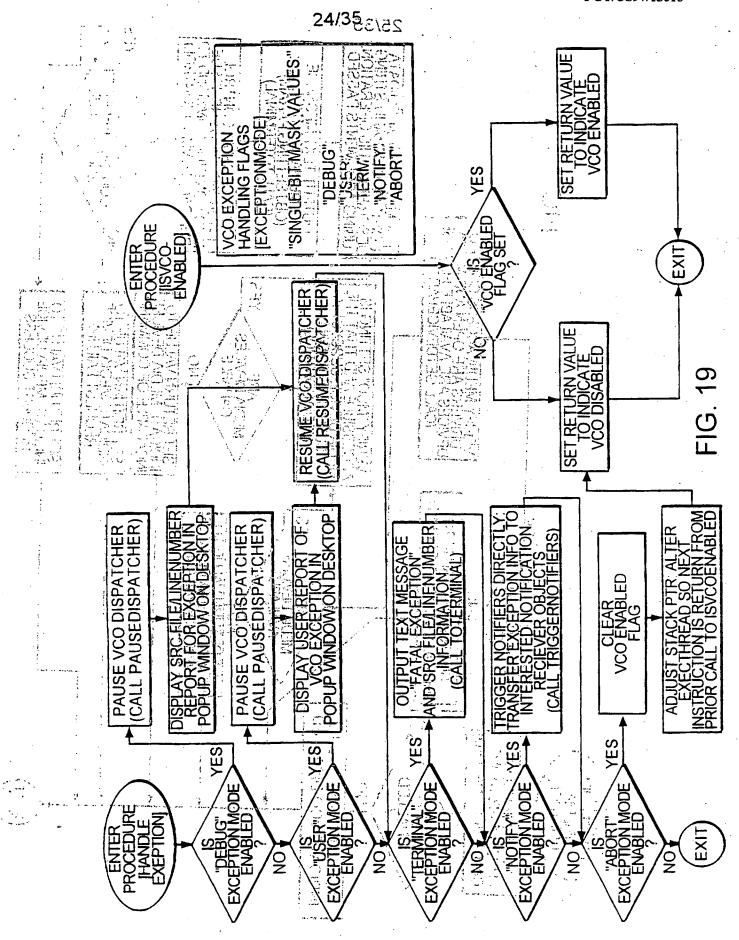


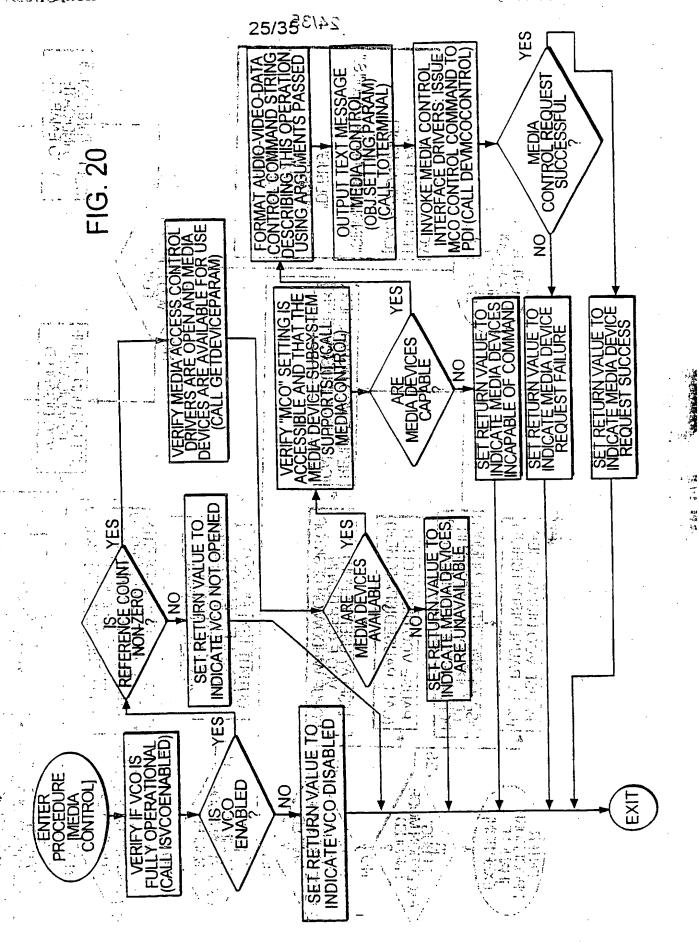


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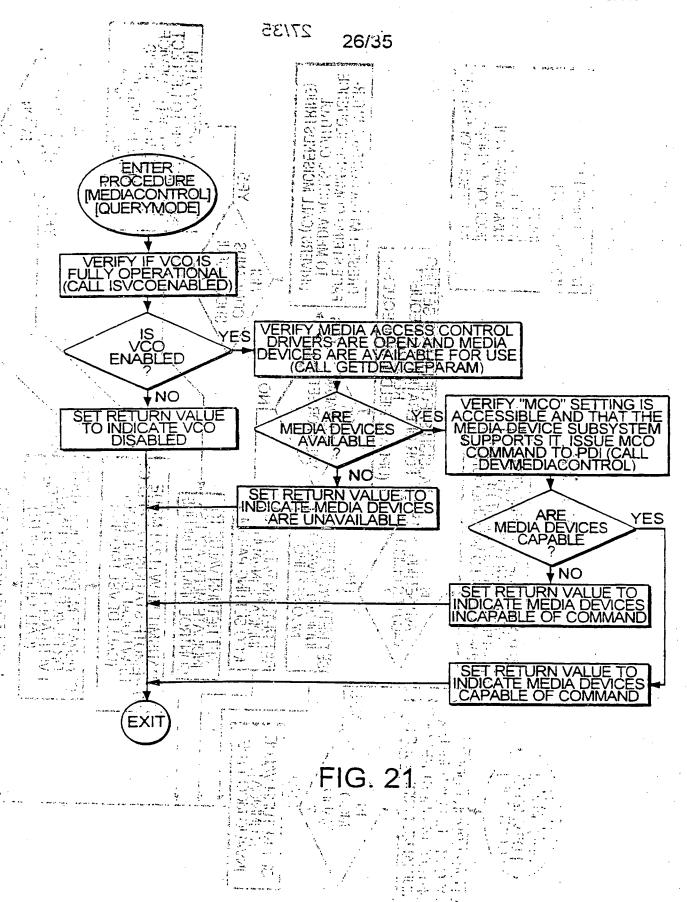


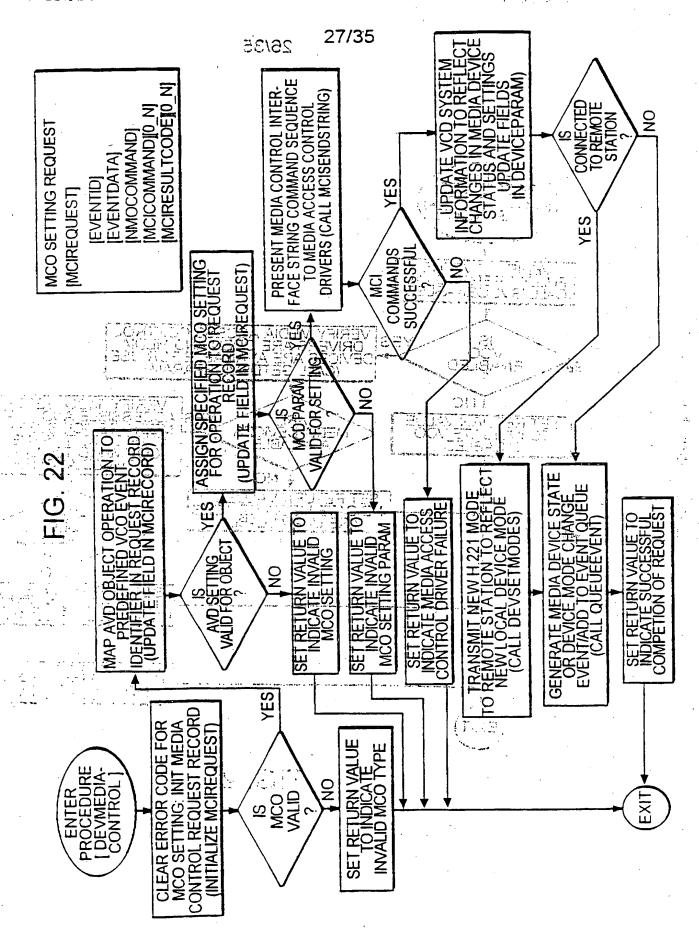


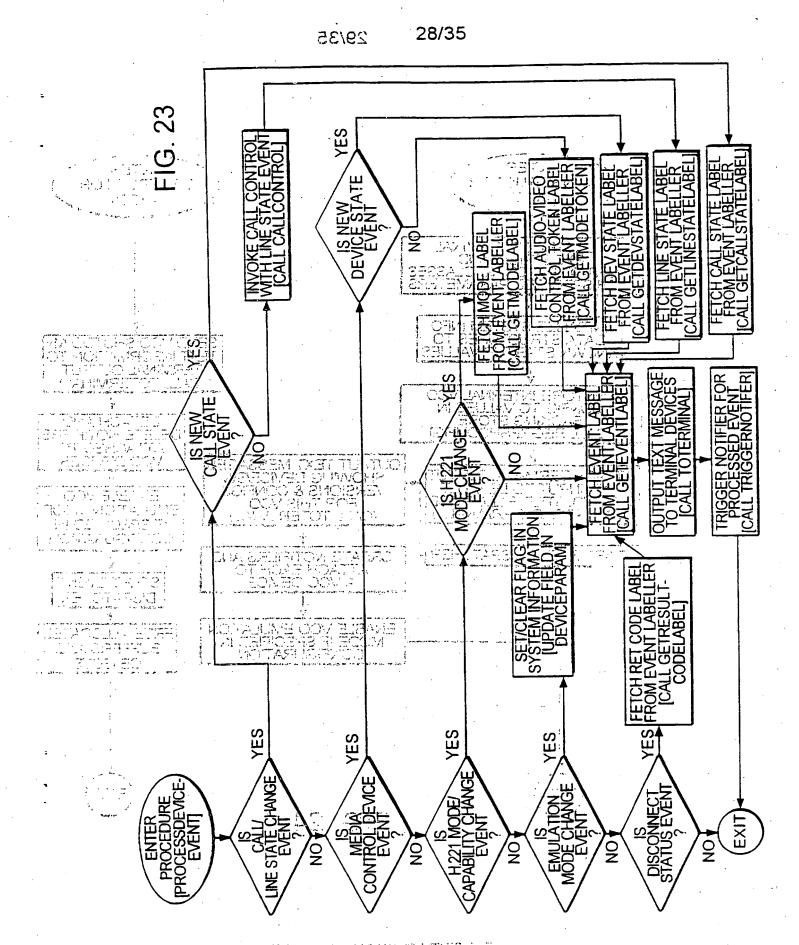




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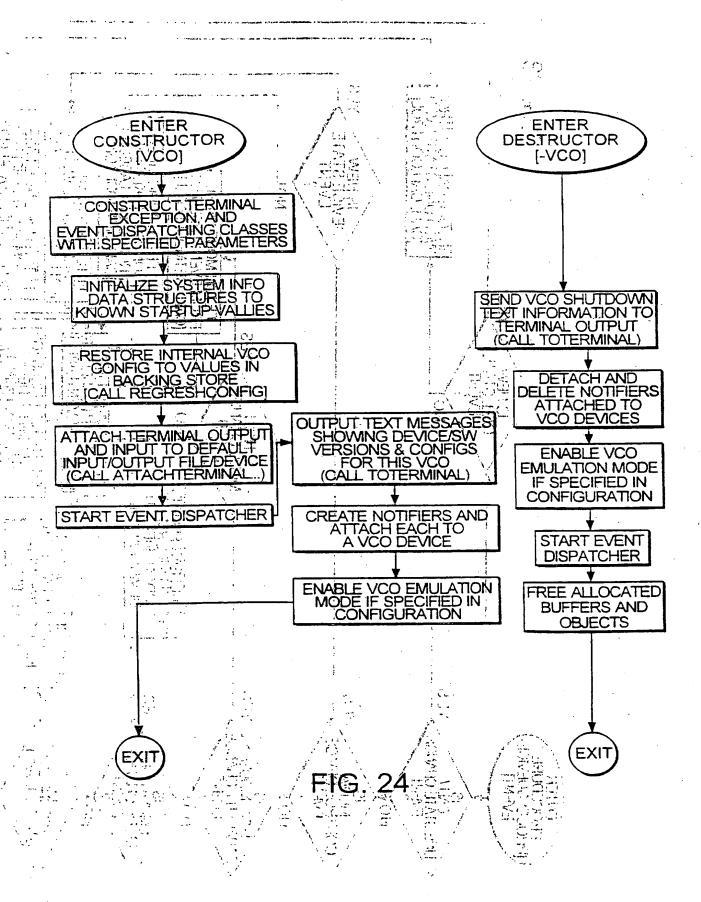




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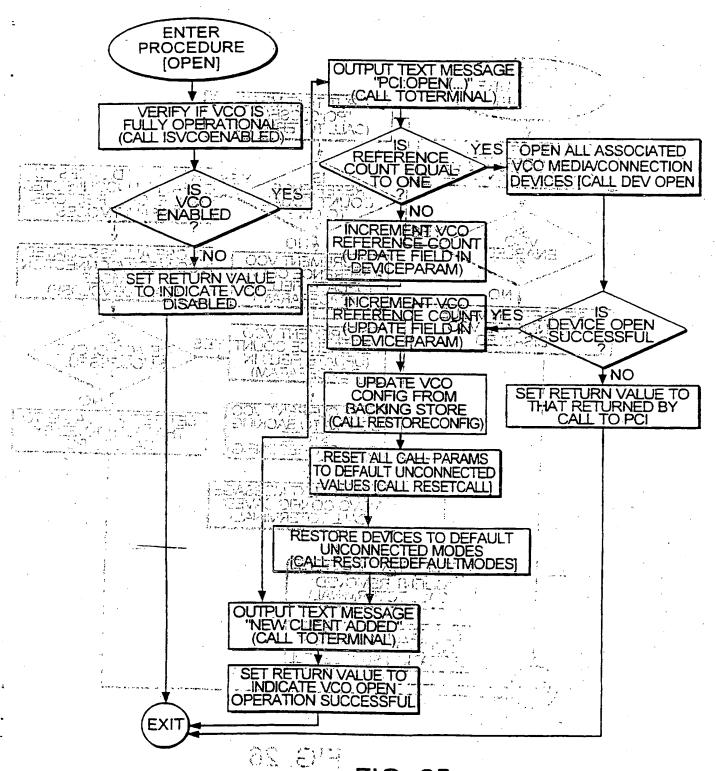
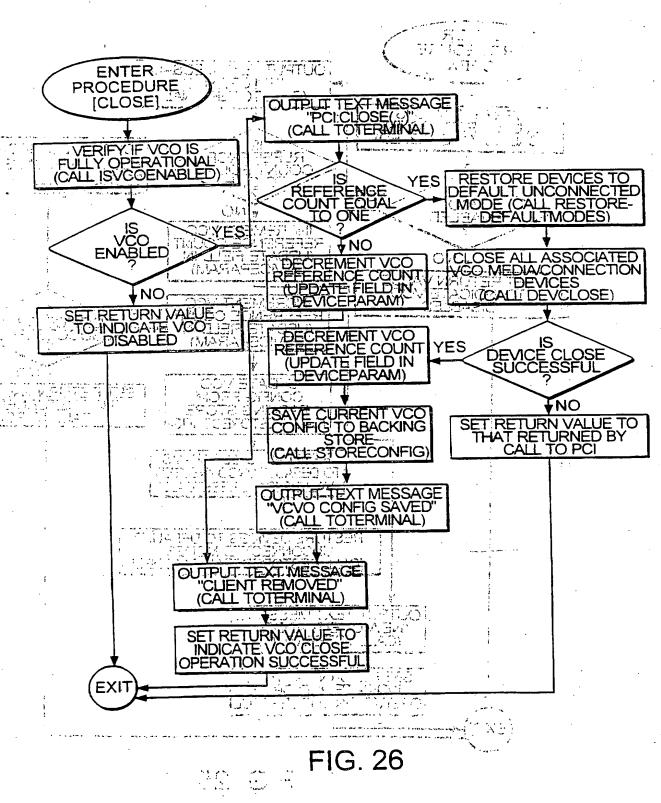
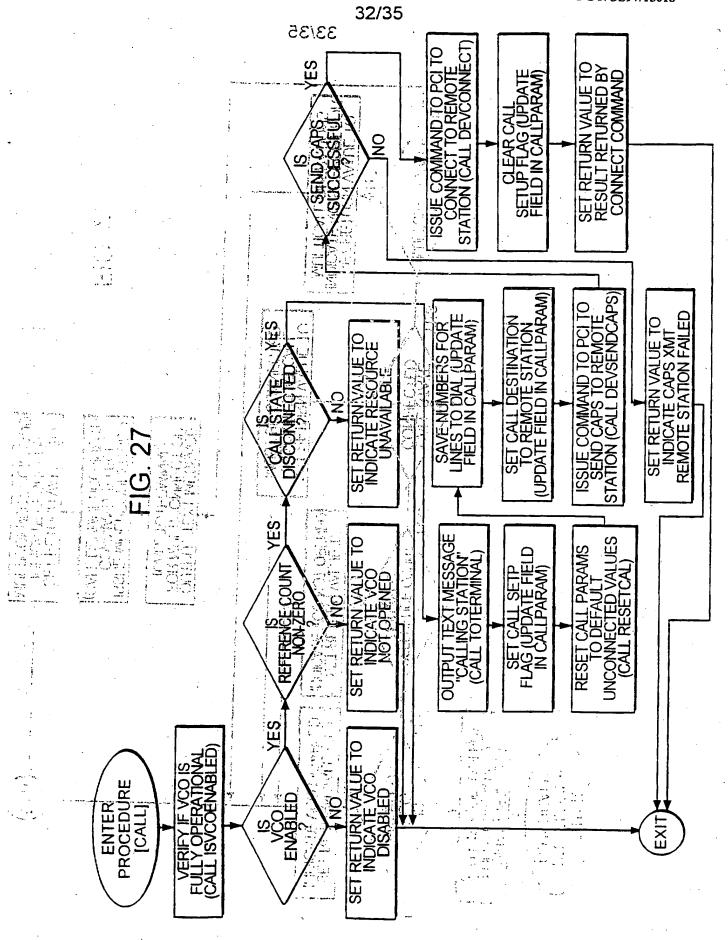


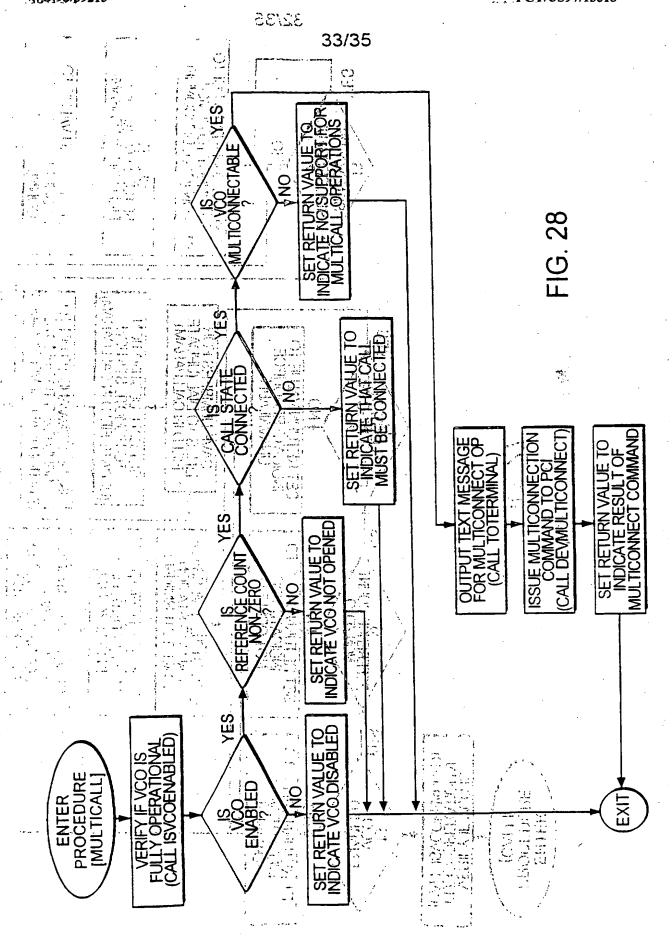
FIG. 25

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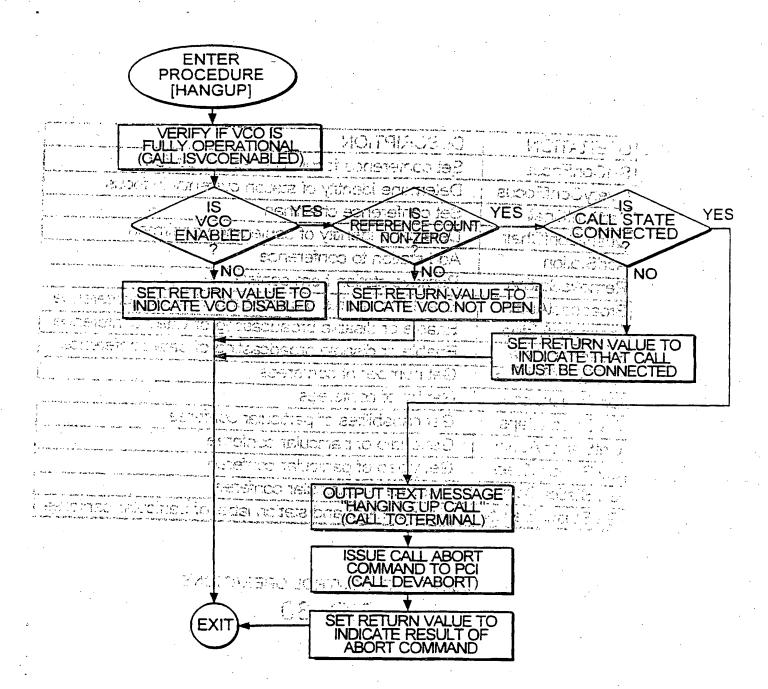


FIG. 29

	AND THE PARTY OF T			
OPERATION	DESCRIPTION			
SetConFocus	Set conference focus to specified station			
QueryConfFocus	Determine identity of station currently in focus			
SetConfChair 5	Set conference chairman			
Query ConfChair	Determine identity of conference chairmens			
AddStation	Add station to conference			
RemoveStation:	Remove station from conference			
BroadcastAudio 5	Enable or disable broadcasting of audio conference			
BroadcastVideo	Enable or disable broadcasting of video conference			
BroadcastData	Enable or disable broadcasting of data conference			
GetNumStations	Get number of conferees			
GetStationList	Get list of conferees			
GetStationCaps	Get capabilites of particular conferee			
GetStationAudio	Get audio of particular conferee			
GetStationVideo	Get video of particular conferee			
GetStationData	Get data of particular conferee			
GetStationIdentity	Get numbers and station label of particular conferee			

MULTIPOINT CONTROL OPERATIONS

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International application No. PCT/US97/15018

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scarci	terms: physical layer, virtual layer, multimedia, virt	tual interface, contro	ol interface, logical fu	nction, relational	
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1	OCUMENTS CONSIDERED TO BE RELEVANT	ici. Bodievard, San	Native Co. 1006 and C	433	
Categor	ry* Citation of document, with indication, when	Relevant to claim No.			
X	US 5,226,160 A (WALDRON ET A	L.) 06 July 19	93, Col. 3, lines	1-11	
1	48-57, Col. 5, lines 45-66, Col. 7, li				
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Υ .	US 4,677,588 A (BENJAMIN et al.	1-11			
Y	US 5,483,647 A (YU et al.) 09 Janu	1-11			
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	to be of particular relevance	are prairi	ole or theory underlying the		
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	document which may throw doubt on priority claim(s) or which is cited to establish the publication date of another citation or other		document is taken alone		
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Date of th	ne actual completion of the international search	Date of mailing o	f the international sea	rch report	
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